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ABSTRACT

Designed as a teacher's guide to stimulate student interest, creativity, and achievement, this teaching guide includes 132 projects which involve the use of photography as an instructional tool. The volume is divided into subject areas with grade levels ranging from kindergarten through higher education. Most projects are multidisciplinary, and each project includes the title, contributing author, location, subject, grade level, quotation from the author, purpose and description of the project, activities, materials, resources and expenses, outcomes, and adaptability. The subjects of the programs are: (1) art education, including creative expression, various art forms, spatial relationships, and human understanding; (2) career education, which illustrates the building of skills and knowledge through participation in the workplace; (3) community studies; (4) English, including a study of writing and literature; (5) history, which uses a unique approach that touches on composition and art; (6) language arts, which reviews varied approaches for enhancing language development in the elementary grades; (7) languages (other than English); (8) mathematics; (9) music, which integrates music with communications, art and photography; (10) photography; (11) science, including aspects of biology, botany, chemistry, the environment, ecology, physics, and human growth; (12) social studies; (13) special education, which gives an array of ideas for specialized teaching and caring; and (13) visual literacy, which illustrates communications through the use of photography. (JB)

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CAMERAS IN THE CURRICULUM

A challenge to teacher creativity

An NEA/KODAK Program

Volume 2 / 1983-84

Administered by
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CAMERAS IN THE CURRICULUM

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Introduction

An alliance between industry and education has helped to create and establish an exciting program for schools in the never ending search for challenging ways to raise student interest and achievement.

The Eastman Kodak Company and The National Education Association (NEA) have joined together to conduct the program "Cameras in the Curriculum." It provides teachers with the opportunity to:

- employ still photography to enhance teaching,
- experiment with novel approaches to complete curriculum objectives,
- establish new avenues of learning,
- challenge students as they carry out projects, and
- describe (for others) the strong motivational components of a completed program.

This publication attests to the firm belief by Eastman Kodak, the NEA and the National Foundation for the Improvement of Education (NFIE) that when teachers are given free rein to create programs for a particular purpose, their inventiveness reaches into all facets of schooling. Teachers' projects here range in subject area from map reading and community studies to science and health education; and from kindergarten through higher education. Activities vary from photographing the streets of large cities to close-ups of small creatures that inhabit the nation's forests. Special audiences are included, such as, the Handicapped and Gifted and Talented pupils and projects span all grade levels. The breadth and depth of the projects have helped to open "learning windows" which were heretofore closed for many. There appears no limit to the imagination and creativity of educators and no bounds to the application of photography as a teaching device.

The Benefits

First-hand experiences attest to the value of "Cameras in the Curriculum" projects. For example:

- Debora Carroll of Superior, Wisconsin, states, "Students who never participated in school related activities volunteered to stay after school to work on our book."
- Marvin Hamilton of Lone Grove, Oklahoma, says of his 8th grade students, "Even shy and timid students gained new confidence in communication skills."
- Ray Taylor of Oak Harbor, Washington, says he, personally, has "never been so excited or involved in a project in all my 27 years in the classroom."
- In Lake Charles, Louisiana, Gerry Bader tells us, "Every student has requested photography to be one of the major areas of study. I don't think they'll ever tire of learning with photography."
- Geneva Ackman of South Dakota states, "The project was seen as so valuable by the principals of three schools that they are using (school) monies to buy a 35mm camera for each elementary school."

Products have been added to school libraries; project activities added to curriculums, and materials incorporated throughout a range of grade levels.

Project Procedures

A clearly defined set of procedures governs the manner in which "Cameras in the Curriculum" is carried out.

An open call for proposals is conducted each fall. NEA's state affiliates conduct an initial screening of the proposals in January. The most promising ones are judged by a National Panel, made up of classroom teachers and representatives of leading educational organizations which chooses 150 award winners from the states' selections. The 150 winners receive a $200 grant and approximately 3½ months are allowed for implementation of projects. Final reports are submitted to NFIE in May.

In June, the National Panel again evaluates all programs and selects National Award Winners with prizes

that range from $500 to $1500. All 1983–1984 National Award Winners are noted in the project descriptions.

About the Publication

This volume is divided into subject areas. Grade levels range from Kindergarten through Higher Education. The reader should be aware that most projects described here are multi-disciplinary. A project listed as "science" does not rule out, necessarily, its applicability to other subjects.

A project which resulted in the production of individual student's books for the improvement of Language Arts, at the elementary level is not meant, necessarily, to be purely classified for that level alone.

The many faceted applications do lend flexibility to the projects. While there may be a particular designation for a project's audience, such as inner-city students or Special Education groups, application is not static but can be used as an instructor sees fit.

Users of this publication can adapt a project and emphasize any aspect they wish. The adaptability of a project is limited only by the desire or need to change its focus.

Industry Support

High standards and excellence of educational quality are difficult to maintain with tight budgets. Restricted spending has led school districts and states' Department of Education to search for funding from business and industry to supplement program budgets and help enrich school offerings. The private sector's support in the form of funding for education has allowed for new partnerships and alliances. These enhance, in diverse ways, the enterprise of schooling for our nation's youth.

Eastman Kodak's commitment to education through cooperative arrangements has led the view of many major corporations today, namely: the quality of life in America, now and in the future, is directly dependent on the quality of our educational systems.

This volume, supported by Eastman Kodak, sets out to create a multiplier effect within the education community. The successes of outstanding teachers who have done such a great job can now be shared. Those who own this volume should introduce others to its content and its potential for realizing excellence.

Our hope is that the projects will not only be read, but will act as a stimulus for teachers to use the camera, particularly where student achievement and motivation lag and where learning aims are high.

Frances Quinto
Project Director

Focus on a Kaleidoscope of Kids

Judith Feola

Lakewood Elementary School
Rockville, Maryland

Subject: Art Education

Grade: K–6

"Lakewood students and teachers have been 'turned on' to the use of cameras in all phases of the curriculum."

Purpose and Description of Project

Judith Feola's overall project was designed to document and disseminate information on the interrelated arts program at her school. It resulted in a slide/tape presentation that combined pictures of numerous activities used to infuse the arts (music, drama, the visual arts, and dance/movement) into the curriculum at specific grade levels. Lakewood Elementary School used an interdisciplinary approach to incorporate the arts into the curriculum and to develop basic skills and meeting individual needs in a creative and expressive way.

Activities

The classroom teacher and the art specialist planned lesson activities that would relate an art form to a specific curriculum area. Each lesson involved using the camera, either for creative expression or for documentation. Students received instructions on using and handling the particular camera available for that lesson.

Many individual activities contributed to the outcomes of the overall project. It would be difficult to describe all of them in detail here. Following are summaries of two representative lessons.

Now We Are Six. A kindergarten class listened to "Now We Are Six" by Milne. Then they talked about changes in skills as a child "gets big." With the help of the classroom teacher and the dance/movement specialist, students practiced different movements to the beat of a drum. They showed a progression of movements from creeping and toddling to walking, jumping, skipping, and hopping. The "movement" words were written on 3 × 7 cards. As a card was selected, each group practiced the movement to the beat of the drum. Finally, each group practiced the entire set of movements with the drum. Two sixth-grade photographers took candid shots during practice as well as posed shots, with the students "frozen" during their movement. The kindergarteners learned to use their bodies to interpret a poem and the word cards reinforced reading skills. The photographers learned to capture pure movement on film.

V.I.P. (Very Important Professional) Visit. This lesson utilized photography to provide documentation and to create instructional materials. As an introduction to the history of photography, fifth and sixth graders looked at everything from Civil War and frontier photos to modern color photos used in advertising. A professional photographer held an informal session to discuss his background, education, and current work. Then he carried out a "hands-on" demonstration of his cameras, tripods, lenses, and light meters. After he explained the photographic process, students had a chance to ask questions.

As a follow-up lesson, students used photos to make a type of collage called cubic photos. They cut photos and construction paper in identical puzzle pieces and then intermixed the pieces as they mounted them on a sheet of paper. Students used a Kodak Visual Maker for the lesson.

This particular lesson made the students aware of photography as a profession in both historical and contemporary contexts.

Materials, Resources, and Expenses

The materials and equipment varied from lesson to lesson, as did the people involved. Generally 35mm cameras were used for photos. Resource materials and supplies related to the specific curriculum areas.

Outcomes and Adaptability

Once the slides were assembled from all the lessons, Lakewood created its slide/tape presentation for school and community use. Feedback from teachers and students indicated enthusiasm; the introduction of photography as a means of creative expression was successful in integrating the arts with the curriculum. "The success . . . was most evident in the children's ability to master the tasks of operating the equipment and in their realization that photography can be a means of satisfying personal expression."

The Elements of Art Through Photography

Patricia L. Kuntz

Shreve Elementary School
Shreve, Ohio

Subject: Art Education

Grade: 5

"My photo looks more like lines than shapes, but I took this picture because of the shapes between the lines." (Student)

Purpose and Description of Project

A class of 28 fifth graders used photography during an art project designed to increase their awareness of five elements of art: line, shape, color, pattern, and composition. Students photographed examples of these elements at school and in their community, and then used the photos as the basis for original art. Patricia Kuntz hoped students would be able to define, recognize, and show understanding of each of the five elements of art.

Activities

Students first defined each of the elements of art in general and then set out to find and discuss these elements in their surroundings. A professional photographer introduced them to the use of these elements in photography. Next, they took their instant cameras out into the community to capture each element: lines in the school environment, shapes in a nearby park, color in the downtown area, pattern on the school playground, and composition at a place of the students' choice. After Kuntz evaluated each photo, the class began to prepare original artwork.

Every student created one of each of the following, based on their photos:

Lines—a colored-pencil sketch using only lines to create not only shapes but also light and dark areas.

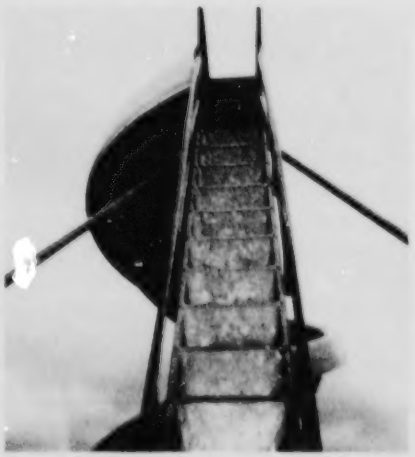
Shapes—a tissue-paper picture made from colored tissue shapes mounted on drawing paper and covered with a solution of water and glue.

Color—a painting on tag board created with acrylic paint in primary colors plus black and white.

Pattern—a stained glass pattern made with dark construction paper, glue to outline the pattern, and chalk to fill in the spaces.

Composition—a photo collage made with magazine photos.

Kuntz evaluated the drawings to be sure specific elements were shown, and then students mounted and labeled their photos and art, and placed them in individual notebooks. As a summarizing activity, Kuntz and her students discussed each element of art as it was represetned in a famous painting.



Materials, Resources, and Expenses

A professional photographer provided insight into the elements of art as they are represented in photography. Students' mothers offered transportation and encouragement during the field trips.

Kuntz purchased 14 Kodak "Champ" cameras, 20 packages of color film, flash bulbs, and batteries for $225. The art supplies for the in-class activities (notebooks, drawing and construction paper, tissue, scissors, colored pencils, markers, glue, tagboard, chalk, acrylic paint, etc.) cost $75.

Outcomes and Adaptability

Kuntz's testing indicated 98% of the students were able to define the five elements; her review of the photos and artwork showed 100% and 97% success rates, respectively, in capturing the elements. Initially some students had problems with their photos. They were not analyzing well what was in the viewfinders so they did not capture elements clearly; their awareness increased greatly by the end of the project. The photo/art notebook of each student demonstrated a practical understanding of the elements of art; each element was well captured in the photos and easily identifiable in the artwork.

Kuntz found the camera "excellent" as a motivational tool. The students' excitement about the project was expressed in many ways: searching for their photo subjects, patiently sharing the cameras, discussing why they took their photos, encouraging each other, and taking excellent care of the cameras. "The students took to the cameras so naturally—it didn't matter if they were 'special' or 'gifted.'" They even discovered a unique imaging method. Some students accidentally peeled off their prints before they were fully developed. They pressed them back on the backing, but because they couldn't get them back in the exact position, they created a double-image print.

According to Kuntz, "Since the elements of art are the basis for the art curriculum, this project could be adapted easily by any other art teacher from kindergarten to postsecondary."

Documentation: A Portrait and a Place

Margaret Chancellor Caldwell
John Cannon

Mingo Community Schools
Mingo, Iowa

Subject: Art Education/Social Studies

Grade: 7

"I wanted my seventh grade to remember it isn't difficult to get good photographs. I wanted them to remember what great success and fun they had with photography."

Purpose and Description of Project

This project combined art activities with related social studies writing assignments for nine seventh-grade art students. Each student first created a tempera batik self-portrait with an aged local building in the background. Then each one completed two writing worksheets: one addressing the question of "Who am I?" with the help of information gathered from family resources, and one exploring the social and economic impact of the building selected.

Margaret Caldwell, a high school art instructor, intended to present in a cohesive manner a wide variety of essential art skills—drawing and painting skills, basic camera and darkroom skills, and problem-solving and creative-thinking skills.

Activities

Caldwell carried out the project during 33 class periods. Students, under the guidance of their art instructor, spent two classes discussing the structure of the face and drawing it. For the next two classes, students used mirrors to prepare self portraits. Students then selected local landmarks to photograph. Students sketched in the landmarks on the self portraits using the photos for guidance, and the enlarging grids were prepared. Students devoted five sessions to enlarging their drawings in pencil and darkening them with magic marker. They spent the next seven classes in creating the actual batiks.

Color slides were taken of the students with their landmarks and of each completed batik. The slides were then developed and converted into a filmstrip which was shown to the class as a culminating activity. Students spent five sessions completing their writing assignments: the family history worksheet asked them questions about themselves and their families, and the community history worksheet required them to draw conclusions about their landmarks' social and economic functions presently, 50 years ago, and 100 years ago.

Materials, Resources, and Expenses

The student photography activities required a 35mm camera, one roll of Tri-X film, Kodachrome slide film, darkroom chemicals and equipment, developing trays, focusing scope, and printing easel. Supplies for creating the tempera batiks included 8½" × 11" and 18" × 24" paper, prewashed cotton material (old sheets were donated), tempera paint, India ink, matboard for mounting, large mirrors, yardsticks, paintbrushes, and a drawing board. The cost of the entire project, including slide and filmstrip preparation, came to less than $130.

Local school staff contributed to the success of the project including the school's two art instructors, the social studies teacher, John Cannon, who provided a lesson on local history and conducted the writing activities, the school principal, and the district superintendent. A professor of art at Central College served as consultant as did the art consultant from the Iowa Department of Public Instruction. In addition, family members and community residents provided invaluable insights into family and local history.

Outcomes and Adaptability

Caldwell used a "Family Feud" type of contest involving two teams of students answering questions to evaluate their knowledge of camera terms and darkroom procedures. She found this approach preferable to a written quiz because she wanted students to concentrate more on the fun of taking good photographs.

After evaluating the students' three art exercises—drawing from the mirror, drawing from the photograph, and enlarging the drawing—Caldwell found the students' ability to draw what they saw had improved greatly. The sharpness of the final photos indicated they had learned to operate the camera and to develop film correctly.

Caldwell suggests that her cooperative-type project could combine the visual arts with either social studies or language arts. She thinks the project would be suitable for sixth through eighth graders.

4 Different Ways To View Our City

Alison M. Hildebrandt

Eastern Heights Junior High
Elyria, Ohio

Subject: Art Education

Grade: 7

"Students made magnificent abstract paintings based upon their realistic photographs."

Purpose and Description of Project

In order to expand her students' view of their city—both visually and in their mind's eye—Alison Hildebrandt designed a project that offered them four different viewpoints: a satellite view, a bird's-eye view, a human's-eye view, and a bug's-eye view.

Activities

Following a pretest and an exercise in visualizing, students explored satellite photos with the help of videotapes, slides, and publications on NASA's LANDSAT photography. The aerial or bird's-eye view was introduced by a guest speaker from the Lorain County Tax Mapping Department. He brought a series of aerial photos which students used to locate such features as a quarry and an orchard. Students then watched a filmstrip on maps and mapping skills, and, using maps of Elyria and Lorain County, they completed a search-and-find worksheet.

Student-taken photographs were the focus of the segments on a human's-eye and a bug's-eye view. Hildebrandt identified the parts of the camera and demonstrated loading and operating procedures. Students each took home a camera and shot six subjects from both the human's and the bug's viewpoints. In class, the students compared their photos and made use of all four views at the same time to complete a compare-and-contrast exercise.

Students then selected one of three art projects to complete: (1) Select a small portion of one of the photos and enlarge it into a large, abstract tempera painting. (2) Cut and assemble your 12 photos into a montage and do a painting based on the design. (3) Trace your route to school from a map and use this as a design for a painting.

Finally, students cut out models of their homes which they taped onto an aerial photograph with strings connecting the model to the actual location and completed a post-test which covered the entire project.

Materials, Resources, and Expenses

Videotapes, slides, maps, and publications were the primary resources for map activities as well as for the first two viewpoints. The Lorain County Tax Mapping Department donated over $50 worth of aerial maps and a county map for each student. The Teacher Resource Room staff at NASA's Lewis Research Center made free copies of LANDSAT videotapes on the blank tapes provided by Hildebrandt.

Students used school-purchased Kodak Instamatic cameras ($15 each) and 12-exposure color film to capture the last two viewpoints.

Outcomes and Adaptability

Because most students had never flown in a plane, they were fascinated by how structures looked in the aerial photos. Their awareness of the locations and relationships of places and features in the city increased, as did their map-reading skills. Learning to use a camera themselves generated great pride in their photos; none of them selected the photo montage activity because "They were so possessive of their prize pictures that they could not bear the thought of cutting them up."

Hildebrandt advises that NASA has used LANDSAT to photograph the entire country and can provide reasonably priced slides. The only view that might be difficult is the aerial view if the county cannot provide such photos. She also cautions teachers against selecting, as she did, very inexpensive cameras; she eventually had to replace all the cameras and all the photography had to be done over.

Hildebrandt suggests that "this project could be transferred to another city or town, as well as to other age groups, and especially to other subjects"—map skills in social studies, shapes and angles in math, and city planning in government.

Architectural Scavenger Hunt

Sharon Phelps
Patricia Rosenkranz

Medical Lake Middle School
Medical Lake, Washington

Subject: Art Education

Grade: 8

"What was unique about this project is that by the end, we had 42 students who could take and develop pictures while being able to identify many of the elements of architecture."

Purpose and Description of Project

Sharon Phelps and Patricia Rosenkranz combined the efforts of their journalism and art classes in a scavenger hunt in downtown Spokane. The art students were to locate (or scavenge) features relating to their study of architecture, while the journalism students were expected to utilize their photography skills in capturing these features. Rosenkranz intended to turn classroom instruction in architectural awareness into something tangible while Phelps wanted to give her students opportunities to photograph "the visual images created by angle, light, shadow, and texture reflected from the architectural forms."

Activities

Rosenkranz's art students were given an "awareness" pre-test; they were asked to draw a picture of Spokane from memory. Their drawings lacked architectural detail and variations in building forms. They were given a teacher-designed study packet including a vocabulary list, brief descriptions of basic building forms and architectural styles, and photocopies of exemplary architectural forms. Meanwhile, the journalism students were learning to use the school's 35mm camera and to develop negatives and make prints in the school's darkroom. The two teachers located buildings that reflected various architectural forms, compiled the scavenger list, and mapped a variety of routes for walking tours that would expose all the groups of students to the items to be found.

On the day of the field trip to Spokane, students were divided into groups of four or five, with at least four cameras and two journalism students per group. The object was to locate, photograph, and take notes regarding the name, location, and identifying features on as many items from the list as possible. At some point on the tour, all groups had an opportunity to tour an historic Spokane hotel.

Group members developed and printed their pictures, with the journalism students helping the art students. Each group then selected their best photos to mount in a display complete with explanatory captions and decorative touches provided by photography and other art technicians.

Materials, Resources, and Expenses

A student teacher and the six parents who served as group leaders during the field trip were the only outside resource persons. The students used 10 35mm cameras and 26 Instamatics—most brought from home. Phelps and Rosenkranz supplied film for both types of cameras. Developing was done in the school's portable darkroom with typical processing equipment and chemicals. Pebble board and art supplies were used for the student displays. Phelps estimated their costs as follows: paper, $50; 30 rolls of 126 film, about $57; Tri-X film off a 100-foot roll, $20; chemicals, $20; and pebble board, $37.

Outcomes and Adaptability

Rosenkranz's art students were evaluated by means of a test requiring indentification of architectural features, their contribution to their group's final product, and their final composite cityscape of Spokane. Phelps critiqued each final display on the basis of print quality, uniqueness of photographs, and use of photographic techniques.

The transfer of knowledge between the art and journalism classes was "remarkable." Because each group was able to experiment and improvise with their negatives, each was able to create a unique finished product that demonstrated knowledge and understanding of both photography and journalism. The two teachers found that students had difficulty tying the pictures together for the final displays. As a result, Rosenkranz and Phelps suggest the use of group themes such as types of arches; each final display would then cover an area of architecture different from all the others.

To carry out an identical project, an area of diversified buildings and other architectural art forms is necessary. However, both teachers think the same idea can be applied to studying careers by touring businesses in an industrial park, studying nature and the environment at a zoo or arboretum, or discovering local history or identifying elements of design in natural and man-made structures in the local community.

Community Outreach/Hallmark Nursing Home

John V. Crowe

East Bridgewater High School
East Bridgewater, Massachusetts

Subject: Art Education

Grade: 9–12

"The photograph allowed me to capture my subjects in their environment at one specific time so that all through the painting I could look at them and maintain the emotion." (Student)

Purpose and Description of Project

John Crowe developed a three-week project for his 23 advanced art students that combined portrait photography and portrait painting with learning about the concerns of the elderly. Small groups of students visited the Hallmark Nursing Home where they talked to and photographed the residents. These photos then became reference materials which they used in creating large acrylic paintings on unprimed canvas. The students also completed pre- and post-project surveys on aging and their attitudes toward the elderly and nursing homes. Crowe's goals were to eliminate the intimidation students generally feel when drawing or painting portraits on canvas and to encourage emotional reaction and empathy between painter and subject.

Activities

First, students completed the pre-project attitude survey as a homework assignment. Next, they participated in a lecture and demonstration given by a commercial photographer on using the instant camera and on lighting techniques. Then the students began visiting Hallmark Nursing Home in groups of four to take photos; each photo session was followed by a class critique of the results in terms of composition, lighting, etc. The students projected their photos on a canvas with an opaque projector, and roughed in their portraits in pencil. The pencil drawings became the foundation for the expressive color and brushwork the students used in "covering up" the drawings and creating the portraits. The portraits, in various stages of completion, were critiqued by a portrait artist.

Completed portraits were presented to the public at two exhibition/receptions at the nursing home and at the annual exhibit of the East Bridgewater Arts Council.

Materials, Resources, and Expenses

Crowe's students used a Kodak Instant camera with close-up lens, color film, clamp lights, bulbs, and a tripod during the photography sessions. For the paintings, students used 1" × 2" strips for stretcher frames, heavy-

weight unbleached cotton, nails, staples, and acrylic paint.

Resource people included a commercial photographer, a portrait artist, and the co-chairperson of the East Bridgewater Council on the Aging. The latter discussed the concerns of the elderly and told nursing home "stories" which put some student fears to rest. The high school's Home Economics teacher and her students prepared food for the reception.

Outcomes and Adaptability

Crowe and his students learned from their activities that the arts can be effective in sensitizing society to deeply human concerns. Crowe analyzed the project's outcomes in terms of five major categories:

1. The project increased student insight into aging and the elderly.
2. Students developed a thorough understanding of the expressive qualities of light and learned how the photographic images of physical reality can be combined with emotional reality through the painting process.
3. Students agreed that it was inexpressive to simply duplicate photos in paint, that "the manipulation of paint, the evidence of the artist's hand, should convey the emotional reaction of the painter to the subject."
4. The photography sessions and the exhibition/receptions generated interest and enthusiasm among the nursing home residents with continuing friendships.
5. Students were motivated by the fact that their work would be displayed, and the enthusiastic reactions to the exhibits fostered pride in their abilities.

Crowe concludes that the instant accessibility of the photographic image was crucial to the success of the project.

Crowe suggests that this project can be especially effective in suburban areas where students have little or no contact with the elderly. All that is needed is a local nursing home, preferably within walking distance, and administration support.

Look and See Books

Sylvia K. Forti

Woonsocket Senior High School
Woonsocket, Rhode Island

Subject: Art/Photography

Grade: 10-12

"The camera has the disarming effect of being 'user friendly.' Students who were not artists with the pencil or brush achieved equally well."

Purpose and Description of Project

ASPIRE (Art Shared by People Investing in Relevant Education) is a state-funded, citywide program for the visually gifted and talented in Woonsocket. Students participating at the high school level expressed themselves through 35mm color slides, black-and-white photos, and video films as they completed a three-year study cycle on foundations, imagery, and visual literacy. The first 13 seniors to complete this cycle became "mentors" for 2,000 elementary students in 13 area schools when they used their photography skills to prepare a series of elementary-level *Look and See* books on visual literacy. Sylvia Forti's project was intended not only to provide a visual instrument for the elementary-level students but also to improve each senior's ability to use the 35mm camera and print black-and-white photos, to interpret each problem according to his or her own style and creativity, and to develop visual perception. As an example, one book gave the elementary students "A New View" of familiar objects. First, a small portion of a photo was revealed and the reader was asked to guess the object's identity before turning the page to see the entire photograph. (See photos)

Activities

Over the course of six months the students were introduced to black-and-white film processing and printing, and then began doing their own photographic work. The students photographed appropriate subject matter for the content, wrote the text, used transferrable letters to design the text layout on the book pages, developed and printed their photos, organized and sequenced the material, made book covers, and finally bound 13 *Look and See* books.

Materials, Resources, and Expenses

Within the school, an art teacher consulted on the general production of the books, and the metal instructor drilled holes in the paper and book boards to facilitate binding. Two newspaper photographers and a nature photographer shared their knowledge with the students, as did the artist-in-residence.

The students used six 35mm cameras with close-up rings and Plus-X and Tri-X film. They developed their film in the school's darkroom using Kodak chemistry, 5 × 7 and 8 × 10 RC paper, and typical film processing and enlarging supplies and equipment.

To make the books, students used four packages of 11 × 14 60-lb. Fairfield Vellum for mounting the photos, grey book boards and two yards of ¼" polyester batting for the covers.

Outcomes and Adaptability

The creation of the *Look and See* books proved to be a total success in providing a special creative outlet for the gifted students. Even those who were not adept at drawing or painting achieved equally as well as class members who received regional and national Scholastic Art Awards. In the end they endowed their community with a unique visual literacy resource as the books were placed in the libraries of the 13 elementary schools. While classroom evaluation techniques indicated that the students had improved their photographic skills and expressed aesthetic principles clearly, Forti says, "The ultimate evaluation will be the amount of usage the books will receive. . . ."

Forti believes that the opportunities for replication and adaptation of the project are limitless. Teachers might employ the same format for books focusing on a single theme—e.g. the seasons or man-made objects.

Visual Composition

David A. Gaydos

Naperville Central High School
Naperville, Illinois

Subject: Art Education

Grade: 10–12

"What am I shooting? What do I want to say? How can I say that visually?"

Purpose and Description of Project

As part of a three-week unit in a Mass Media elective course, tenth through twelfth graders studied how elements of visual composition convey meaning—historically in paintings and today in still photos, films, and television. Their final objective was to demonstrate their knowledge of visual composition through individual photos and group storyboards for a one-minute videotaped commerical.

Activities

Three reproductio,as of famous paintings by El Greco, Rembrandt, and Turner were examined to see how elements of visual composition—placement, perspective, framing, juxtaposition, lighting, etc.—transcended their use to create a higher meaning. Students completed the same exercise with still shots from contemporary films. Two local artists explained to the class their use of visual composition in photography and painting. The students wrote a structured essay on the composition and meaning of six photos from the *Images of Man* filmstrip. They also reviewed some of Gaydos' own photographs.

Gaydos used his 35mm camera in a lecture on loading the camera, camera features, light and motion control, *f* stops, backlighting, and depth of field. Eleven students brought in cameras and further explanation of photographic techniques and procedures was given. The students were then assigned to take five black-and-white photos within the parameters of the school and its grounds. They had two days to do the photography with random teacher supervision. Finished photos were presented with explanations of what they had wanted to say and how successful they felt they had been. The final activity involved students in identifying the visual elements in their favorite commerical and using these identified elements in creating a storyboard for a one-minute commerical for a product of their choice.

Students were evaluated on the quality of example photographs from newspapers or magazines that they selected for class discussion, on their essay evaluating the six professionally taken photos, and on the effectiveness with which their own photos and storyboards indicated understanding of visual composition techniques.

Materials, Resources, and Expenses

To keep the costs low for this potentially expensive activity, some students provided their own cameras to be shared with four other students, and every student contributed $1 for film. The total cost for filmstrip, reference material, painting reproductions, posterboard and markers for the storyboard, film and developing was about $200. A local photographer and a painter shared their visual composition techniques.

Outcomes and Adaptability

The students met Gaydos' goal of increased knowledge of the elements of visual composition—both in terms of describing them and of using them in actual photography. Another rewarding outcome was that by being limited to photographing on their school campus, the students became more conscious of "art" in the world around them.

Gaydos thinks that students of any ability level can succeed at this type of activity. He sees the unit as easily transferrable to journalism, photography, art, or film study classes, or to a mass media unit in a freshman English class or a unit on historical and propaganda photos in a history class.

Photography + Printmaking

Billie Sessions

Star Valley High School
Afton, Wyoming

Subject: Art Education

Grade: 10-12

"The students were fascinated, excited, and a little shocked to be learning camera and darkroom procedures in a printmaking/art class. Their attitude changed about the increased possibilities of cameras in art work."

Purpose and Description of Project

Billie Sessions' project involved having her 16 students shoot black-and-white continuous tone pictures of landmarks or buildings characteristic of her area and then convert those photos into three-stage high-contrast film transparencies to be used in three-color silkscreen prints.

The students learned the basics of camera operation, gained darkroom experience, came to really see and be aware of their community, learned the procedure for using high-contrast positives for silkscreen printmaking, and had the opportunity to display their work for the community. As a result several prints have been requested for homes, businesses, and offices. Community interest in the process has been so high that an adult course is being set up; and community members have asked for their barns or homesteads to be printed.

Activities

The process involved in this project basically includes the photographing of a subject onto clear film, "burning" the print onto a light-sensitive sheet of Ulano film, placing the developed Ulano on the screen to be used, and making the print. The process had to be repeated for each tone of ink used, such as tan, light brown, and dark brown. The students had previously studied various kinds of printmaking so that they were familiar with silkscreening, including working with ink, blocks, and other basic equipment. Now, they learned about camera functions.

Sessions showed the students many examples of three-color posters of photo silkscreens and discussed the basic process. She also discussed the environment and architectural heritage of the region and assigned the students to "look and think about their environment for a few days to decide on subject matter." Then, field trips were set up so that the students could photograph their individual topics.

Students then had to make three "takes" of one black-and-white negative through the enlarger onto 8 × 10 high-contrast Ortho film to produce three positive transparencies of differing tone intensity. These positives were then used to burn an image into photo-silk-screen Ulano material, which produced negatives. After these Ulano blocks were developed, washed, and applied to the silkscreen, the original 60-second positive (now a negative) was printed with the lightest color choice of ink (tan, for example), once again becoming a positive. The procedure was then repeated, with the medium and dark inks. The prints were then matted with two or three colors of board per print, chosen to complement the ink and paper colors.

Materials, Resources, and Expenses

Human resources included another art teacher and the president of the bank who gave exhibition space.

Materials and equipment included: 35mm and similar cameras; black-and-white ASA 32, 125, 400 (continuous tone) film; developing tanks and chemicals; darkroom and enlarger; high-contrast Ortho sheet film; A and B developing chemicals for Ortho film; Ulano blue silkscreen film; #2 photo-flood bulb with housing; heavy piece of glass; A and B powder developing chemicals for Ulano film; photo tray, measuring cup, and mixing whip for the A and B powder; sink with hot and cold water; silkscreens; hinged silkscreen backboards; silkscreen inks; squeegees; large x-ray film for registration; and matboard of various colors for mounting. Total cost was $250, for black-and-white film and materials.

Outcomes and Adaptability

Sessions rates the project as "a huge success." She says that "the students became very interested in photography; they gained a real pride in their environment; the class became very close, due to the teamwork and the goal involved; and the community gave us so much positive feedback that it was overwhelming."

Discovering Photographic Form and Content Through Contextual Study

Dr. Kathleen Kadon Desmond

The Ohio State University at Newark
Newark, Ohio

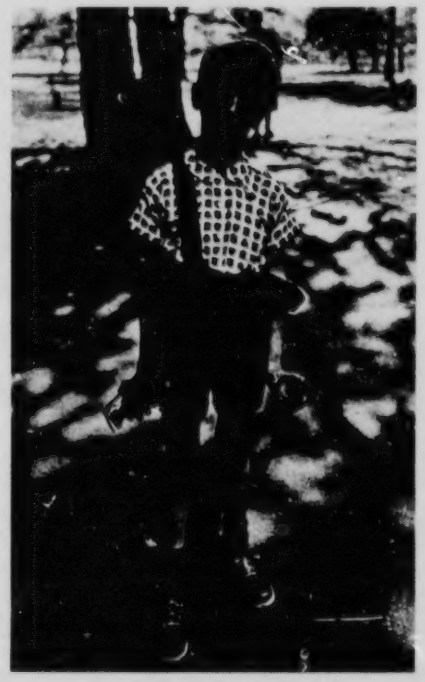
Subject: Art Education

Grade: Higher Education

"Photography students felt they were better able to respond to and talk about photographs because of their participation in this program. In fact, I 'caught' them explaining things to their friends in The Art Gallery during the student exhibit at the end of the program."

Purpose and Description of Project

Kathleen Desmond's Beginning Photography students participated in a program she planned and implemented to enhance student understanding of the form and content of photos through contextual study. The students focused on 12 black-and-white photos created by 10 photographers. Desmond's program included an exhibition, lectures, discussion through student photography and research. All these activities were designed to help students discover different ways of viewing photos and to develop an understanding of the differences among photos through contextual research.



Activities

Desmond selected 24 photographs taken between 1899 and 1972. The photos, with original artist-generated descriptive or interpretive titles, were independently rated by three photographic judges on the level of abstraction. Twelve of the judged photos were chosen for a specific section on photos entitled "Fragments" as part of a larger exhibit on "Form and Content: A Participatory Exhibition" in the University's Art Gallery. Each student was provided with a fragment of one of the photos to match with the complete photo and a participatory worksheet which encouraged each one to view the complete photo in different ways—as artist, art critic, art historian.

Desmond then introduced her students to Terry Barrett's categories of Differences Among Photographs which they applied to the same 12 photos. The students were given six weeks to research and write reports on 10 photographers. During this time, students also created their own photos based on Barrett's classifications. As they prepared their photos, students participated in critiques involving group assessment for reports to the entire class every two weeks. These critiques included discussion of Barrett's photographic contexts—original, external, and internal. At the end of the program, Desmond asked her students to rank the 12 photographs according to the differences and to indicate the context they used to decipher the differences, making reference to their research papers if necessary. An exhibit of the students' photographs rounded out the program.

Materials, Resources, and Expenses

Desmond arranged to have former photography students reproduce the 12 selected photos on 8 × 10 photographic paper, which she then had professionally overmatted with 16" × 20" mats. She also developed and duplicated the "Fragments," Differences, and Contexts worksheets, and collected the photography books, journals, and magazines necessary for student research.

Outcomes and Adaptability

Desmond concluded that her goal of developing students' conceptual and aesthetic thinking was met. Through their study of master photographers, students were able to recognize quality picture making and apply that knowledge to their own photographic creations. Aesthetically, students were able to distinguish photographic ideas in the master photogrpahers' work and to conceptualize and apply these ideas to their own work. They were also able to identify the context they were using in discussing their own photos as well as those of others.

Desmond found the extent of student participation unexpected. Their understanding of the differences among photos and the contexts of photos became an important part of their thoughts and discussions, and one-third of them continued their photographic study. Also unexpected was the extent to which the students enjoyed preparing the research papers because they were discovering the "humanness" of the photographers they were writing about.

Desmond thinks her program can be adapted to large populations (such as in art galleries), small populations (such as in classrooms), and individual studies.

Photographic Diversity

Terry M. Barrett

Ohio State University
Columbus, Ohio

Subject: Art Education/Beginning Photographic Media

Grade: Higher Education

"The unit is designed to provide a balance between making photographs and thinking about photographs. It leads toward an increased appreciation of the uses of photography in society as art and as information."

Purpose and Description of Project

Terry Barrett's program gives future art teachers an overview of photographic theory and practice, as it involves them in investigating the concepts behind photographs, whether their own or those of professionals. While his students learned camera and darkroom techniques, the course subordinated technique to expression, with the goal of having students understand and appreciate the range of uses and importance of photography in society.

Barrett had the students practice categorizing photographs taken by others into six types: descriptive, explanatory, interpretive, ethically evaluative, aesthetically evaluative, and theoretical. Students looked at and discussed a large variety of reproductions of photos, made black-and-white prints and color slides of each of the six types of photos, and extensively critiqued each other's photos on the basis of their intended functions.

In explaining the balance he sought to provide his students, Barrett notes that "most students with an art back ground. . .tend to approach most photographs for the formal beauty of line, texture, balance, and contrast while minimizing the informational content. Most students from a humanities background. . .tend to concentrate on informational content and ignore the aesthetic qualities of the photographs. The students who participated in this course learned to attend to both aspects of photography."

Activities

In the first few class sessions, the students worked together and in groups to sort postcard reproductions into categories that they devised and to select their favorites and discuss the reasons for their selections. They began learning about how to use the camera and darkroom.

Barrett sorted photos into groups without stating his method and asked the students to figure out his system. Through discussion, they reached his six categories and discussed the criteria for placing photos in this new system. For example, primary examples of *descriptive* photos are ID photos and medical X-rays, while war photos and advertising pictures fall in the *ethically evaluative* slot. While the categories often overlap, students learned to approach photographs with such interpretive questions as: Is this photo made to describe a person, place, or event, or is it made to praise or condemn what it pictures? Is this photograph made primarily to be beautiful or is it made to explain a natural phenomenon? Their studies carried them to photo exhibits on campus and in town and to the library.

After understanding the system, the students tried to place more photos in the new categories and debated with each other as to where each photo best fit. After more camera and darkroom instruction, they moved on to taking their own photos in each of these categories, with the first assignment being to take an ethically evaluative photo of some aspect of society about which they felt strongly enough to praise or condemn.

The final exercise required students to choose one category and make a 10-slide, silent sequence for projection. Among their choices: a descriptive sequence of going through a car wash, an ethically evaluative condemnation of graffitti, and an interpretive series showing colored golf balls on a putting green to "metaphorically show how human alienation results from people's prejudices." The viewing session of these productions produced "animated discussions," reports the teacher, on such points as the "trial of translating ideas into still and silent pictures" and the "importance of having clearly articulated ideas before shooting."

Materials, Resources, and Expenses

The teacher provided 35mm cameras, darkroom chemicals, and enlargers, while the students provided film (black and white and color slide) and photographic paper. Other required equipment included a darkroom and a slide projector. The class also made extensive use of photo reproductions. (No specific cost data provided.)

Outcomes and Adaptability

Barrett reports that all his students "came to appreciate the diversity of photographic practice in contemporary society and the impact of photography on society.

Barrett says that this method of teaching photography may easily be used by others. He explained that "lacking darkroom facilities, this unit could be modified to a series of response, rather than production, activities by use of the categories with reproductions." He also adds that even elementary school children have learned to understand the categories once some of the terms were translated into simpler language—"right and wrong" for "ethical," for example, or "visually pleasing" for "aesthetic."

Through the Eye of the Camera: Learning To See and Seeing To Learn

Thomas L. Anderson

Florida State University
Tallahassee, Florida

Subject: Art Education

Grade: Undergraduate and Graduate levels

"The visual world, unlike the conceptually stereotyped world most of us perceive as reality, is constantly undergoing change. The camera helps us see that shapes, colors, sizes, and meanings change with viewpoint, light quality, distance, and intent."

Purpose and Description of Project

Thomas Anderson's program is designed to help college or university level art education students develop perceptual literacy by using photographs to overcome the conceptually derived visual stereotypes that result from indiscriminate labeling and language-dependent seeing. In other words, the students learn to keep their *con*ceptions from interfering with their actual *per*ceptions.

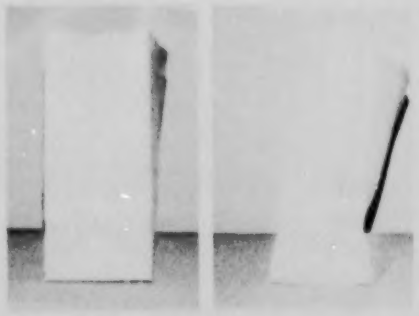
"The students used instant cameras to record their solutions to 16 distinct visual problems in the areas of seeing and understanding form and shape, size, space and spatial relationships, structure, detail, light, and color," explains Anderson. The class first discusses each problem; each individual goes out to take pictures to solve the problem; the class critiques the photographic solutions; and students then mount the photos, one assignment per page, along with a written explanation of the conceptual/perceptual problem and how it was solved.

The perceptual notebooks that are the final product of the students' photographic investigations are not just a record of their findings, points out Anderson. These future art teachers can also use their notebooks in their classrooms to carry out similar projects or simply as examples of concepts and percepts when teaching drawing.

The project draws on the textbook *Art, Culture, and Environment* by McFee and Degge. However, Anderson developed his particular lessons himself and concentrated on photography rather than drawing as a recording device.

Activities

Prior to engaging in the 16 activities in this project, students became familiar with the operation of their instant cameras. The procedure for each of the activities followed the same pattern. Students and instructor first discussed a problem based on the discussion questions at the beginning of each lesson; each student went out to photograph something that proved he or she understood the problem and



its solution; and each student explained the resulting photos in terms of the problem and solution and received feedback from class and teacher. Finally, successful photos were mounted, one assignment to a page, along with a written discussion of the concept/percept involved and became part of the student's perceptual notebook.

The four categories of problems were: 1) seeing and understanding shape and form, 2) seeing and understanding size, space, and form, 3) seeing and understanding structure and detail, and 4) seeing and understanding light and color. Among the concepts demonstrated by the students' photos were that round things seldom really look round (unless you're directly above or below them), that people and objects look larger or smaller according to how far away you are from them, and that parallel lines (such as railroad tracks) appear to eventually meet. Among other findings were that different lighting can drastically change the mood of the same scene, that three red objects may really be distinctly different colors, and that the form of an object often reflects its function.

Materials, Resources, and Expenses

Anderson and his students used Kodak Champ instant cameras and Kodak instant film with the rationale that students should get the quickest possible feedback on their visualizations so that they know immediately whether they are dealing with a percept or letting what they know conceptually get in the way of full seeing. Students shared cameras so that most of the $200 grant could be used for film, allowing about 25 shots per student.

Outcomes and Adaptability

Anderson judges that the project was "an unqualified success in teaching the participants how to use their perceptual abilities, how to visualize the world without interference from their conceptual knowledge base, and how to transfer this knowledge, with the help of the products they developed, to future students."

The program's replicability is demonstrated by the fact that, according to the teacher, "many of the future teachers who completed the program indicated they would be using it as it stands or in modified form to teach the concepts involved at the high school and middle school levels."

Cameras and Careers

Katherine J. Hummel

Carl Sandburg Elementary School
Charleston, Illinois

Subject: Career Education

Grade: 1

"Not that I'm prejudiced, but I would rate this project pretty much of a howling success."

Purpose and Description of Project

Katherine Hummel had students photograph their parents (or other adults) on the job, focusing particularly on the place of work, tools and equipment, goods or services produced, and how school subjects relate to the job. Children and adults then worked together to write captions for the photos, and the completed and bound books were read by each first-grade author. The books remain a permanent part of the school library, where the teacher says they are a *very* hot item not just with her class but others.

Hummel found three main areas of achievement resulting from this project: (1) The children learned about a variety of careers, developed descriptive writing skills, enhanced both their reading and speaking vocabularies, and learned library skills. (2) They learned about photography, including how to manipulate the shutter button, compose pictures, and evaluate their own and others' photos. (3) They learned to appreciate the skills required for various jobs and how academic learning relates to these jobs; were involved in increased communication with both adults and classmates; and gained increased pride and confidence in their capabilities.

Activities

Hummel led off the project with a week's discussion and study of careers that included more than a dozen guest speakers. Among these were a parent who told about his job as a university football coach. He brought "two hulking players as Exhibits A and B." A local newspaper reporter and photographer photographed the children in their "Occupation Dress-up Day" costumes.

The children were introduced to photographic basics, including hands-on practice with empty Instamatic cameras and an analysis of some of the "goofs" Hummel herself had produced. The students were absolutely enthralled by the idea that they were eventually going to take pictures.

Since she had only 10 cameras for 24 children, Hummel sent them home in waves—armed "with camera, flash, and a page of instructions in a plastic bag"—and passed along the cameras as they were freed up. As soon as each batch of students had taken photos of a parent or an adult at work and the prints were processed, these were sent home. Adults and children worked on writing narration to accompany the pictures. Along with the prints went a sheet of guidelines for putting together each child's occupation book and a parent/student evaluation of the project.

Once the completed books were returned to school, they were bound, and a room parent helped the children type library cards for the books and the card catalog. Hummel and the children made a special display for their books, which are a permanent part of the library. Each child read his or her book to the entire class. Many volunteered additional interesting facts that they had learned about the occupations covered.

Materials, Resources, and Expenses

According to Hummel, the parents and other adults who allowed themselves to be photographed at their jobs were essential to the success of the project.

Equipment included 10 Instamatic cameras, which were loaned by Eastern Illinois University's audiovisual department; flash cubes, donated by the General Electric Company of Mattoon; and bookbinding materials, including covers, half-lined paper, title pages, stapler, library cards and book pockets, and a typewriter. Only cost items were 23 rolls of 24-exposure 126 film ($53.50); print developing ($64) and camera batteries ($20). Total cost—about $6 per student.

Outcomes and Adaptability

The results of the project more than fulfilled Hummel's expectations. Both the student and the parent evaluations were overwhelmingly positive. Hummel found that more than 90

percent of the children's photos were clear and well-composed. Students did their share of writing the narration. Parents reported that their children contributed anywhere from 50 percent to 100 percent of what was used. She also says that the children did a particularly good job of presenting their books to the class, making their way with ease through such terms as anesthesiologist, technician, and tourniquet, which certainly are not in the typical first-grade reader.

Additional outcomes were the laying of a new basis for parent/child communication and the enthusiasm that the project generated in even the shyest child in the class, who had previously declined all inducements to speak before the group. After this child's impressive performance in reading his book and talking about his father's job, reports Hummel, "immediately the class broke into spontaneous applause as I blinked back my tears of joy. A simple camera had released the words within him."

Hummel advises that her project could be adapted to any grade level with only minor changes. For example, any subject-area teacher at junior high or high school level could focus on careers in his or her field. The finished products could be a resource for guidance counselors.

Promoting Yourself Through Advertising

Daniel P. Lynch

Patterson Cooperative High School
Dayton, Ohio

Subject: Career Education

Grade: 10

"All students have a 'product' of what they learned which can be used to promote themselves and help to land a job."

Purpose and Description of Project

Daniel Lynch designed his project to expand his students' knowledge of the camera and how to use it creatively in the classroom. He also aimed at showing that promotion could become one way of dignifying an individual. His commercial art students produced portraits and magazine-type ads to elevate themselves to the status of professional artists.

Activities

Over a period of five months, students were shown eight Kodak audiovisual presentations on various aspects of photography. Each presentation was followed with discussion, questions and answers, and note taking. Study sheets reinforcing the material learned were handed out. Written resource materials included 4-H and Kodak pamphlets on photography and darkroom techniques. To review, Lynch used "Photography Baseball." Students were divided into two teams and were asked to answer photography questions. Each correct answer put a runner on base, and each wrong answer was an out (with the usual three outs per inning).

A local professional photographer explained to the class how to light and arrange a creative portrait for their ad project.

In preparing the actual advertisements, students worked in pairs. Each pair was assigned a 55-minute period to take 20 photos, 10 of each partner. Students reviewed information on planning creative portraits and promoting themselves before they planned and took their photos in and around the school.

Students designed their ads in three steps: (1) They prepared three miniature pencil sketches in which they experimented with layout, typography, and copy. (2) One sketch was selected and expanded into a full-size ad rendering. (3) Students then completed a full-size comprehensive of the final ad which showed color and final layout of the printed piece. The final ad was then pasted up to combine

art, photo, and line copy. The school's graphic arts instructor showed the students how to convert the glossy photos into halftones suitable for offset reproduction.

Materials, Resources, and Expenses

Lynch scheduled student photo sessions so only one 35mm camera ($47.65) was needed. Twelve rolls of black-and-white film ($31.42), commercial developing ($60.00) and paper, art materials, duplication expenses, color film, and developing for the project documentation photos brought the total cost to $194. The only outside resource persons involved were the local photographer and the art instructor.

Outcomes and Adaptability

Previously, photo experience had been limited to audiovisual presentations. Following this project, Lynch sees that his students "feel comfortable in using the camera." They created interesting portraits and learned how to deal with a "real world" challenge—taking original photos and putting together a promotional ad campaign.

Student knowledge of photography was evaluated by means of a 20-question multiple choice test which was based on the study sheets. Lynch noted that students found the questions on lens opening and film and shutter speeds the most difficult. The ad pieces were graded by means of a 100-point commercial art rating sheet. Ad ratings average 85 out of 100 points. According to Lynch, students also demonstrated a thorough understanding of photography (test grades average 83%), increased their commercial art skills, and felt at ease experimenting and improvising in their picture-taking techniques.

Co-op on Camera—Slides Promote Occupational Understanding

Lillian A. McCammon

Helena High School
Helena, Montana

Subject: Career Education

Grade: 11–12

"By seeing and discussing office jobs held by fellow business students, class members became acquainted with the nature of office work and its environment that only several field trips would have provided."

Purpose and Description of Project

Lillian McCammon and two groups of 20 students each, created and utilized a slide/tape presentation to enhance understanding of the nature of office work and to familiarize students with the office environment. McCammon intended the project to make students aware of not only the skills, knowledge, and personal qualities required for success in office occupations but also the equipment and supplies used for such jobs.

Activities

Students enrolled in the office co-op program earned school credit while employed in office jobs in federal and educational agencies and private businesses in the community. With the agreement of the employers involved, McCammon photographed these students at work. Each co-op student provided a written commentary describing duties and supplies and equipment used on his or her job. McCammon edited these descriptions and then the students recorded them for the slide/tape presentation. Three students comprised the graphics committee which designed and photographed beginning and ending posters for the presentation, selected 57 of the 100 slides taken for the final show, and coordinated the slides with the taped narration. McCammon develped a study guide and quiz to be used in conjunction with the viewing of the slide/tape presentation; students were required to identify job titles and duties observed, skill and knowledge areas, personal qualities, and equipment and supplies used by the student office workers. They were also asked to list specific office jobs that they would feel qualified to apply for after viewing the presentation.

Materials, Resources, and Expenses

McCammon used a Canon AE-1 camera with Vivitar lens ($327) and five rolls of Kodak Ektachrome 400 color slide film ($7.58 per roll for film and developing). Six 60-minute cassette tapes and the cassette player-recorder were furnished by the school's Business Department; a carousel slide projector and tray were borrowed from the school library. The graphics committee viewed Kodak's slide film "Photography Composition" before starting to assemble the presentation.

The school's photography instructor recommended the camera equipment to use and assisted the graphics committee. The school librarian helped the students prepare the final recorded narration.

Outcomes and Adaptability

Written responses on the study guide and quiz indicated that the students gained a great deal of information on job skills and understandings from the presentation. All but one student identified a job they felt qualified to apply for after graduation. In addition, students were able to suggest ways to use slide/tape presentations in the business office: training employees in new methods and on new equipment; orienting new employees; etc.

Overall, McCammon identifies two major beneficial outcomes from her project. Students' self confidence received a boost from seeing their peers using sophisticated office equipment; they could re-examine career goals in a new light, each feeling "I can do it, too!" Other students experienced new feelings of self worth from being the focus of a class project.

McCammon recommends that youth groups, guidance counselors, and teachers at secondary and post-secondary levels would find such a project rewarding. It can provide an understanding of the office environment and of job responsibilities that could be duplicated only by several field trips. McCammon suggests several other functions of such a presentation: introducing potential employers or other interested groups to the office co-op program, and serving as a recruiting device to show job possibilities for non-college-bound students.

Teachers on the Horizon

Joanne Krajeck

Canton South High School
Canton, Ohio

Subject: Career Education

Grade: 12 (Gifted/Talented)

"Capturing children's expressions [on film] helped the cadets see that teaching is more than tests, rules, and low pay. Teaching is helping, shaping, and refining young people."

Purpose and Description of Project

As a means of encouraging gifted students to enter the teaching profession, five senior students were given the opportunity to serve as cadet teachers for fourth- and fifth-grade gifted students. Their lessons were designed to stimulate creativity and to generate critical and divergent thinking through the use of still photos of unusual objects, unique settings, and facial expressions. The focus of this project was to demonstrate that teaching is a rewarding profession by providing meaningful experiences for students ready to make career choices.

Activities

The five cadet teachers met for one 40-minute class period each week to plan lessons that revolved around stimulating 8" × 10" black-and-white photos. It was especially necessary for them to analyze and synthesize the content of the photos chosen for the creativity and thinking lessons. The cadets taught 40-minute sessions with the elementary students over a period of three months. After the photos were shown to the children, the cadets generated brainstorming sessions that encouraged divergent thinking. Eventually cadets had the children create short stories and poems by arranging and rearranging photo sequences. The students also analyzed and imitated facial expressions from the photos.

A student photographer was present during the teaching sessions and took numerous candid shots of the interaction between the cadets and young children. These photos were invaluable to the evaluation of the cadet teachers' work after each lesson, during which they discussed with Krajeck the children's motivation, discipline, and creativity; and described what the cadets did or did not do to generate creative and divergent thinking. After the final lessons, the cadets used the candid photos during an oral or written review of their successful and unsuccessful moments. Krajeck rejected the use of evaluation sheets or checklists as she did not want "struc-

ture" to take the fun out of the extracurricular teaching experience or to stifle student-cadet relationships.

Materials, Resources, and Expenses

The students used a 35mm camera, black-and-white film, and mounting board for the 8" × 10" enlargements. The school's Camera Club offered photography tips and processed these enlargements. The elementary teachers monitored the teaching sessions in their classrooms, and the high school media specialist offered valuable advice.

Outcomes and Adaptability

The quality of the children's discussions, essays, and poems indicated that the photos were helpful in nurturing creative and divergent thinking. The fresh approach of photo-oriented lessons added excitement, and the children enjoyed the opportunity to use their imaginations freely. The candid photos of the cadets and their students documented the learning experience, measured by the cadet's written evaluation, a personal interview with Krajeck, and a portfolio of enlargements of the candid shots. An added benefit was that the school's Future Teachers of America club, dropped years before, was reactivated and renovated to fit into the new curriculum. Krajeck states that photography "captured on film [the] positive proof of the real rewards of [the teaching] profession."

Krajeck feels that the project is ideal for adaptation in science, social studies, and geometry classes. She considers the extra expense of 8" × 10" enlargements worthwhile because they emphasize the meaning of the subject matter. She also recommends careful planning and coaching for the cadets on handling small discipline problems.

Projecting Professional Images . . . Through the Eyes of Photo Lenses

DeRutha Richardson

Muskogee High School
Muskogee, Oklahoma

Subject: Career Education

Grade: 12

"So many individuals and businesses wanted to become involved, either as observers or participants, that not all volunteers could be accommodated."

Purpose and Description of Project

Robert Burns wished in verse that "some power" would enable us "to see ourselves as others see us." Business education teacher DeRutha Richardson used "before and after" still photographs to do just that for her high school seniors so that they could present the best possible image to prospective employers. Her goal in this project was to carry out a "perception study" that would demonstrate to her students that their dress, grooming, and physical attitudes make up a "silent language" that can make them or break them in the professional world. She also helped her students to gain a background of information and experience on which to base the choices that determine the overall impression they make as would-be employees.

Ten fields covered in the project were general management, office administration, banking, fashion, advertising, executive secretary, teaching, school administration, law, and insurance. Each student focused on one of these career areas. In addition to experiential activities for the students, two tangible products resulted from the project: (1) a job seekers' manual with text and illustrative photographs and (2) individual student photo essays made up of captioned photos (of themselves and personally selected professional role models) that demonstrated what each student had learned.

And Richardson, it should be noted, had the courage to kick off the project with a show-stopper that demonstrated her convictions about the importance of the "silent language." She turned up in class on the first day of the project as a model portraying the most negative image she could contrive. In her own words, she astonished her unsuspecting students by appearing in "an old floppy jacket, flannel socks over stockings, with tennis shoes, a long fishtail dress, hair slicked back, no makeup, and a missing tooth effect." The result? She lost all control of the class, could not get students' attention, and endured "15 minutes of total chaos" before leaving in order to restore her normal appearance. As a result of this graphic demonstration, the project was launched with what the teacher characterizes as "deep, constructive discussions of why appropriate dress for any occasion is important in our daily lives."

Activities

The primary activities of this project fell into three general areas—research, analysis, and demonstration—and were implemented over a period of about three and a half months. Examples of specific project elements—each of which was recorded in photographs—are as follows:

Demonstrations of image do's and don't's by school personnel, students, and community members.

Research and discussion of magazine and newspaper articles on professional appearance.

Color analysis workshops by the school psychology teacher, who is also a professional color consultant.

Workshops by two professional photographers on the basic techniques for taking clear, well-composed photographs, including hands-on experience for the students in camera handling.

Listing by students—on the basis of library research and teacher lectures—of the do's and don't's of professional dress they wanted to demonstrate. Working in teams, students modeled and photographed various aspects of appearance, including head/hair, smiles and other facial expressions, body language, dress, and footwear.

Screening and sorting of photos, by the end of the first week, students began selecting the shots that best exemplified the concepts they had chosen.

An all-school assembly/workshop during which participating students performed a skit on the "Do's and Don't's of Professional Dress" and described their project for an audience of about 600 other students. Three community resource consultants on self-image also lectured and showed a film.

An inventory of students' personal wardrobe, focusing on coordination of key pieces to produce a more diversified selection.

Selection by each student of two complete outfits suitable to the student's chosen career. Students modeled the outfits and photographed each other.

An all-school style show, during which each student modeled the better of the two outfits selected. Each student's personal projection was critiqued by a panel of judges on the basis of a "professional dress check sheet," and the student found to have made the best projection in the category chosen was awarded a color photographic portrait by a local professional photographer.

Selection and photographing by each student of a resource model from a local business or profession. Students then analyzed the resulting pictures according to the same checklist used by the judges of the style show.

Creation of the job seekers' manual—titled "Projecting Professional Images . . . Through the Eyes of Photo Lenses." This effort included deciding on how many and which models to use, the concepts to be demonstrated, selection of photos, and composition of text.

Production of a personal photo essay by each student, using pictures of both self and resource model and captions underlining the points made by the photos. The photos and captions were mounted on poster board by the individual student in a layout of the student's own design.

The project was capped by a lunch out on the town for the teacher and students, all dressed to project a professional image.

Materials, Resources, and Expenses

The project could not have succeeded without the many professional consultants and amateur models who volunteered, according to Richardson. Among these were the school psychology teacher and color analysis consultant; photographers; self-image experts from the state university, the state extension service, and the 4-H program; a variety of school personnel and fellow students of participants; and community members who served as models of their respective professions. In addition, five local dress shops provided clothing selections for students modeling their professional projections, and various businesses provided written material and interviews about their dress requirements.

Students used two cameras on a rotating basis—a Minolta SLR with a 100-200mm, 5.6 MC Zoom Celtic Lens (owned by Richardson), and a Canon AE-1 with a Caco flash and a Vivitar Automatic Tele-converter (provided by an intern teacher). Primary expenses were for film (Kodacolor 100 and 200 film in 24- and 36-exposure rolls) and film processing. Jumbo prints were made free by a local newspaper photographer, and some film was donated by the school journalism teacher.

Outcomes and Adaptability

Richardson found that every aspect of her original design was successfully carried out by her students and that the project stimulated even greater enthusiasm and more dramatic results than she had hoped for.

Based on this awareness, the young people also learned how to identify and select pieces of a business wardrobe that will project the desired image and to complete that image with suitable hair style, makeup, and bodily attitudes.

While all the students participating in this project were female high school seniors, Richardson emphasizes that this sort of perception study would be equally valuable for males and could be initiated with younger students as well.

Examination of Our Community

James B. Vathis

Stephen Decatur High School
Berlin, Maryland

Subject: Career Education

Grade: 12

"They, (The Students) enjoyed photography as a new medium for learning and welcomed a chance to excel outside traditional academic activities."

Purpose and Description of Project

The twelfth-grade students selected two local industries—chicken farming and fishing—to research from the raw product to the marketable product; they prepared slide/tape presentations on these activities. The overall goal was to improve the students' abilities to analyze, provide leadership, plan, and organize sequentially; it also gave them a chance to view local job opportunities and to practice the communications skills they would need for future job interviews.

Activities

After students brainstormed a list of possible topics, discussed the pros and cons of each, and selected the two topics to be explored, they split into two groups and picked leaders. These groups then split into subgroups, each with its own leader.

Students performed most of the work on their own time. They were first required to write a storyboard to determine what photos were necessary. Then they took the photos and practiced their communications and questioning skills by interviewing employees of the industries being studied. Finally, they developed and organized their slides, and wrote and recorded the script. The best slides were printed in photo form for a bulletin board display.

Each group evaluated its own activities as well as those of the other group. Vathis found that students were more useful in critiquing the work because they were aware of who did and did not contribute. He then compiled the student evaluations and prepared his own short evaluation along with the final grade.

Materials, Resources, and Expenses

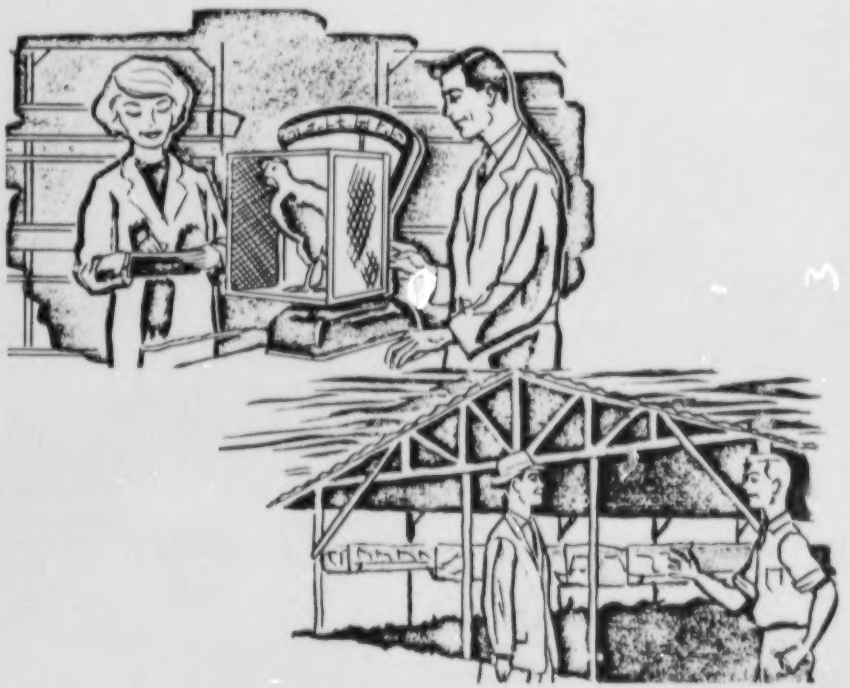
Local fishermen and chicken farmers served as the primary human resources. The school's art instructor also provided advice and direction.

Students used the usual photographic developing, printing, and mounting supplies for slides and photos. A cassette tape recorder was used to tape the script. Because each group used a school-owned camera, the few additional expenses were for one roll of film per group, one cassette tape, photochemicals and paper. Vathis' total expenditure was less than $50.

Outcomes and Adaptability

Since the project was conducted largely outside class, the students had to plan their time, develop a mental picture of what they wanted to show photographically, and discipline themselves to complete the work as scheduled. Students assumed this responsibility willingly. They welcomed the chance to do a "hands-on" project that allowed them to excel outside traditional academic activities. They enjoyed photography as a new medium of expression. Vathis noted that because they completed the entire activity themselves, the students appreciated the project more.

Vathis' program would be easy to replicate because most towns have at least two industries to examine. More topics could be added to maintain the beneficial small-group atmosphere within even larger classes.



Community Study Through Photographs

Diane J. Tallman

Townsend North Elementary
Vassar, Michigan

Subject: Community Studies

Grade: 1-3 (Gifted)

"In this project, students actively developed their perceptions of the working elements of their city, rather than reading about them."

Purpose and Description of Project

Diane J. Tallman and her students laid aside the typical textbook curriculum on model communities and instead went out into their own community to study and photograph its government and services, agriculture, industry, retail businesses, and recreational and social facilities. In the process, they not only learned what makes a city work but produced three slide/tape shows to share their findings with others.

During the project, reports Tallman, her students not only mastered the required social studies concepts and vocabulary but demonstrated many higher level thinking skills as they analyzed what was important, synthesized the information into a new form, and evaluated their emerging products. And, she states, "photography was an essential part of the process as it gave us a way to analyze and synthesize the new product.

Activities

Throughout the project, the students went on 14 field trips to historical sites, city government buildings, and businesses—all within walking distance of the school. The students themselves decided what they wanted to learn and where they needed to visit. They all kept journals and worked in pairs to take the necessary photographs and write various segments of the scripts. Other writing exercises included thank-you letters to the people who assisted them at each field trip site, an original play about the city's founder, and letters to the group's pen pals in Vermont.

Specific project activities, which continued for about three and a half months, included the following:

Students and teacher discussed the project, what they knew about their city, and what they wanted to know, and listed places they needed to visit. They categorized them as governmental, agricultural, historical, etc. They also learned about picture-taking during this time. Each student took several pictures, and the class projected the negatives and evaluated their work.

At this point, field trips began. Sites visited included City Hall, where the children visited with the city manager, treasurer, clerk, and police; the Waste Water Treatment Plant; a city council meeting, where the students spoke with the mayor; the house of the town's founder, Townsend North; the local newspaper office; and a number of commercial facilities, including a restaurant, a bank, and a foundry. At each site, all the children took notes, except for two who acted as photographers.

Between field trips, the youngsters wrote their play about the town's founder, made puppets, painted scenery, and photographed the puppets as well as worked on the other script segments for the slide/tape shows. After the field work was completed, the students selected the final slides to be used, reviewed and evaluated the scripts, and taped the narrations.

The children put on their puppet show as part of the schoolwide Art Fair, presented their entire project to interested classes, and, at last, gave a special premiere showing of the slide presentations. Their audience included parents, school board members and administrators, and the hosts of their field trips. The slide/tape shows have also become part of the school library collection.

Materials, Resources, and Expenses

Primary human resources were the photographer who taught the children how to take pictures, parents who accompanied them on field trips, and the people at each field trip site who conducted tours and answered questions.

Equipment included a Pentax Autofocus camera, a Canon Fb 35mm camera, film and processing, a Kodak Ektagraphic EF Visualmaker, tape recorder, tapes, and slide trays. Much of this equipment was available from the school, although the Pentax camera was purchased. The cost of film, processing, tapes, and slide trays came to about $65.

Outcomes and Adaptability

Tallman reports that her students passed objective tests on city government and businesses even though, due to the project, they had not read the entire textbook. They also passed a test on their own city. However, she stresses, "their understanding and enthusiastic application of these concepts went far beyond what was measured by the test." In addition, says Tallman, "the students feel proud of their slide/tape programs and feel they were worth all the hard work. They have also been noticing newspaper stories about city government and businesses and have been bringing them to class to share."

Tallman concludes that "any class of students could use photography for aspects of their own community to enhance a study of that community."

Architecture: The Badge of Identity for Our Society

Joan R. Benton

Colleton Elementary School
Walterboro, South Carolina

Bells Elementary School
Ruffin, South Carolina

Subject: Community Studies

Grade: 3–8 (Gifted)

"Our study of architecture has been fun . . . . the most interesting part was going around and taking pictures of our architectural structures." (Student)

Purpose and Description of Project

The purpose of Joan Benton's project was to give her and 43 of her students a "hands-on" opportunity to learn about the history of their county. Thinking that the county's homes and public buildings would reflect the county's history, growth patterns, and diversity, Benton assigned her students to prepare a "camera's-eye" view of the local architecture and then analyze their findings from an historical perspective.

Activities

Knowing her students would need "crash courses" in architecture, photography, and public speaking to describe, record, and share their findings effectively, Benton planned an ambitious program. After a discussion of the overall project, the class decided that field trips would enable them to visit parts of the county they might not have seen before, and that each student would photograph one house and one public building for a project slide show. A professional photographer talked to the class about photography in general, and an amateur photographer showed them his award-winning photos and his collection of old cameras, while offering tips on photographing buildings. Students drew names of historic buildings to research; each then prepared an oral and a written report on his or her subject. The class also visited with a 96-year-old local historian who shared her knowledge of the early days of the county.

Then the photography and interviewing began. In addition to shooting photos for a class slide presentation, students interviewed owners and/or managers of 91 homes and public buildings. From the interview sheets Benton prepared a narrative script to accompany the sequenced slides; each student served as narrator for her or his portion on the slide show. Unfortuntately, the school year ended before the presentation could be completed, but Benton saw this as a challenge to be met when she would teach many of the same students the following fall. Her hope is to present the audiovisual show to the county seat as its bicentennial birthday gift.

The 43 students produced three bound booklets in conjunction with the project—"Famous Architects," "Famous Structures," and "Architecture from A to Z," the latter being a dictionary of architectural concepts they had studied—in which they made use of their photos and research findings.

Materials, Resources, and Expenses

Numerous people beyond those mentioned above supported Benton's activities. The coordinator of the county's gifted program arranged the loan of a 35mm camera and audiovisual equipment. Many fellow teachers, parents, local historians, and city and county officials suggested and arranged field trips. The teacher of a local heritage class was even able to confirm that although what a third-grade student learned about his public structure contradicted published information, the student was correct.

Students did much of their research on vocabulary words, famous architects and structures, and local historic buildings in a resource room which Benton furnished with almost 40 reference books from the local libraries, dictionaries and encyclopedias and local and world maps. Audiovisual equipment provided by the school system included an opaque projector, two 35mm cameras for taking slides, two other cameras to record project activities, slide and photo print film, a slide sorter and projector/viewer, two tape recorders and two tape cassettes to record the slide show narration. The slides and some of the photos were commercially developed.

Outcomes and Adaptability

Pre- and post-test scores indicated that the students had succeeded in acquiring the necessary architectural background in terms of people, places, and terms; their overall scores increased by 79%. The slides and photos that they produced showed the students had passed the "crash" photography course. The public-speaking goal would have to be addressed the following fall. Benton had hoped to open up a new area of learning and stimulate continued learning: 23 of the 43 students expressed a desire to continue some aspect of the project on their own. In the end, both teacher and students felt more knowledgeable of their county.

Benton suggests that the slides could serve as the nucleus for other county-related studies—e.g., a survey of specific types of buildings. She sees the project as readily adaptable to different settings, teaching arrangements, and grades. Benton was able to work with her students once a week in groups of 7 to 14, but does not see the size of a regular class or the time-frame of a class period as presenting difficulties if parent volunteers are able to help and fellow teachers are flexible in releasing students from their classes for project activities.

Local History in a Rural District

Sharon O. Kosinski

Milford Central School
Milford, New York

Subject: Community Studies

Grade: 4

"With tape recorders and cameras, the students stepped back in time to experience life on a rural farm."

Purpose and Description of Project

This project was designed to extend the classroom into the community as 30 students were sent out to photograph local sites, to interview community members, and to step back in time. The results—a slide show with script and displays—were to be combined into an oral, written, and visual communication program that was planned to increase students' knowledge of their local history.

Activities

Over a period of eight weeks, the fourth graders participated in six major activites:

They visited a rural farm of the 1800's; cameras and tape recorders documented the students' experiences.

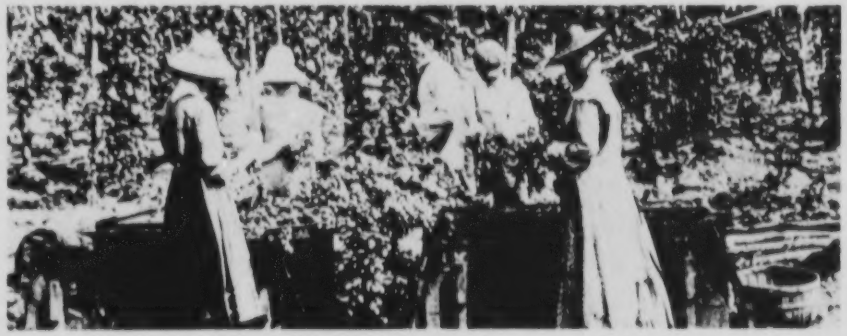
The class was invited to "Share Your Skills Day" at the local historical society. Students created a table display, dioramas of farm life, a colonial cookbook, homemade ink with quill pens, a photo exhibit based on their farm trip, and a "Tell a Story About Our Town" booth where they heard and taped local anecdotes. The society's museum offered the class a chance to try out colonial trades, cook over an open hearth, and visit a one-room schoolhouse. As the students interviewed their guides, a museum staff photographer took pictures. They also used instant and 35mm cameras to photograph the old cemetery behind the museum.

Students drew a map of the community and symbolically represented its local resources. Two maps were chosen for the slide show.

Photo field trips were planned by the students. Since the suggested assignments were varied, students were allowed to express their creativity in selecting the subject matter and the compositions of their slides.

The students recorded oral history as a means of making their area's past come alive. As they talked to community residents, they were shown old maps, diaries, and photos that gave added depth to what they were learning.

The culmination of Kosinski's project was the slide/tape presentation. The class organized the slides, selected tapes, sequenced the material, and even made posters advertising its showing at the school and the local museum.



Materials, Resources and Expenses

Several resource persons provided Kosinski, who was new to the area, with background information; among them were the educational director and the librarian from the New York State Historical Association. A museum staff member told the class stories of the town's past, and the local librarian was sought after as a resource by the students. A professional photographer gave the class a photography lesson and later helped photocopy the fragile documents loaned to the students by community residents.

Kosinski made use of materials on teaching local history provided by the State Historical Association. To complete the slide presentation, students used 14 35mm cameras, 4 tape recorders, black-and-white slide film, a photocopy stand, and instant camera materials.

Outcomes and Adaptability

Students showed measurable improvement in the following skills: (1) Organizing and evaluating oral and written information—Students were able to construct and conduct an interview of at least six questions, evaluate the information, and write a script segment for the slide show. (2) Presenting information—The students wrote reports and used dramatization and role playing to give oral presentations. (3) Improving self-management skills—The need for working with a partner, planning photo sessions, and sharing the cameras provided social growth and improved sharing skills in a class that did not usually get along. Overall, Kosinski concludes that the interest in and learning of local history generated by the project was "excellent."

Kosinski finds this an easy program to replicate with any school population in either large or small group settings; the same careful planning, with the teacher serving as facilitator, would be needed in either case. The focus could also be changed to include architecture, personalities of the past, or any number of topics relevant to any area's history.

Our Community— Its Architecture, Its History

Brad K. Cressman

Sheckler Elementary School
Catasauqua, Pennsylvania

Subject: Community Studies

Grade: 4

"Learning about a community and its history through the architecture of its buildings is an activity ideally suited to photography."

Purpose and Description of Project

Brad Cressman and his students studied the different types of architecture in their community and the history behind the buildings, photographed the buildings, and produced a slide/tape show on the community's history and architecture. They also produced a teacher resource book of black-and-white prints and information from the show's script and transposed the slide/tape show onto 3/4" video tape for use as an individual learning tool.

The class was divided into four groups, each of which concentrated on a particular aspect of the project—photography, securing resource people, researching history and architecture, and compiling prints, slides, and script into a teacher resource kit. Their work has, according to the teacher, drawn an enthusiastic response from various segments of the community and from other teachers. Copies of the show have been presented to the local public library and to the school district, and local community groups began requesting showings even before the project was completed. Cressman says it will be used in the primary grades as a "This Is Our Town" unit, in intermediate grades as a history unit, and in high school as part of the Art Department's curriculum.

Activities

The photography group attended classes in which photography was treated as both an art and a science. They learned how to use a 35mm camera, various photographic techniques, and how to develop black-and-white prints in the darkroom. Then, accompanied by Cressman and the school art teacher, who helped with architectural identifications, the students went on a walking tour around town to photograph historical buildings.

The correspondence group arranged class speakers, including a professional photographer and two members of the local historical society.

The script group researched the history and architecture of the slides, wrote a narrative to accompany the slides, and taped the script, along with music and sound effects.

The final group was involved in writing an introduction for the teacher

resource book and compiling all other components. They used black-and-white prints and the script to produce the resource book and arranged it and the slides into a kit. They also transferred the slide/tape show to videotape for individual student use.

Materials, Resources, and Expenses

Human resources included historical society members, a photographer, the school's music and art teachers, the district reading specialist (who helped with script writing and editing), and the head of the state unit's Instructional Materials Center, who helped students mix voice and music on the audio tape.

Students used four 35mm cameras, a Kodak Ektagraphic EF visualmaker to take slides from reference books, 10 rolls of Kodak Kodachrome 64 film for slides and four rolls of Kodak Tri-X Pan film for black-and-white prints, and darkroom chemicals and supplies. Also required were three audio tapes, three slide trays, and reproduction paper for the resource book. Cressman says that the total cost of producing one complete slide/tape show, including $120 for a Ricoh 35mm camera, was about $220. Each additional copy was about $60.

Outcomes and Adaptability

Cressman says his students learned photography, learned to identify the architectural components of buildings and their historical significance, and were eager to share their new knowledge with classmates, teachers, parents, and the community. They also improved their sequencing, writing, and oral communication skills while preparing and presenting the slide show, he reports.

The teacher adds that the project would be suitable for "students of any age from grade four on up" and suggests that "with the recent increase in public awareness of local history and historical buildings in particular, such a project would be met with open arms by all segments of the community."

Rediscovering the Immediate: Visual and Verbal Reflections of Local History in Scio, New York

Catherine Cleary
Sandra Trice

Scio Central School
Scio, New York

Subject: Community Studies

Grade: 4–6

"We did not anticipate as much student enthusiasm, interest, and love of history and photography. . . . Students have acquired an interest in photography beyond this specific project."

Purpose and Description of Project

Catherine Cleary and Sandra Trice used photography to provide 21 students with a renewed perspective of their immediate surroundings and a sense of their village in an historical perspective. Students selected various aspects of local history to research and prepared written reports illustrated by their own photographs.

Activities

Students worked on their project once a week for two months and then twice a week for the final month. The students worked in pairs and chose their own areas to research.

Introductory activities included discussing family trees with a county historian (after which students completed genealogical forms at home with their parents), attending a demonstration on using the 35mm camera, and learning to create different composition effects as part of taking successful photos. After a class session on local architectural styles, students took a walking tour of the village to identify and photograph examples of Greek Revival, Victorian, and other styles.

A local historian made two slide/tape presentations—one on the area's history and one on the symbolism and tradition of tombstones in the local cemeteries. He also showed the students the tools and materials to use to make tombstone rubbings. While they were on a later field trip, they made rubbings at a cemetery near the school, and were excited to discover the tombstones of Civil War veterans in their own community.

The next major event was a panel discussion with four lifelong residents of Scio. Students used role playing to prepare appropriate questions.

Throughout the project, students printed their own 5 × 7 enlargements from negatives previously developed by Trice, and continued their independent research. In addition, a high school photography teacher helped them videotape the presentations of three of their guest speakers.

Materials, Resources, and Expenses

As indicated above, many local residents offered to share their knowledge of the area's history with the class. The high school librarian instructed them in research skills, while the town librarian provided research materials. The parents of one of the students loaned the class an enlarger and timer for the darkroom, and two high school teachers helped evaluate the reports and photos. The school's principal directed the project, arranged building facilities, and assisted the coordinators in carrying out the activities.

Students used 35mm cameras and color film. A storeroom was converted into a temporary darkroom and stocked with the usual developing and printing supplies. Thanks to the loaned materials and equipment, Cleary and Trice estimated their total cost at $80.

Outcomes and Adaptability

The students "developed a spontaneity and excitement" as they learned how the history of Scio related to major events in American history. Their sensitivity to their surroundings sharpened as their knowledge and appreciation of history grew, as indicated by their independent written reports. Throughout the entire process, they developed their research and interviewing skills. Their architectural study enabled them to identify local examples. Cleary and Trice discovered that the project engendered "an interest in photography that will be of lifelong significance."

The coordinators state, "Because this project deals with local history, historians, and architecture, and the compilation of this information in a visual and verbal manner, it is able to be generalized and replicated by other teachers." It could be applied to many other aspects of history: transportation, modes of dress, sports, and education.

Know Your Town

Katherine Coady
Howard Herbert

Curriculum Center
East Brunswick Public Schools
East Brunswick, New Jersey

Subject: Community Studies

Grade: 4-6 (Gifted and Talented)

"The camera was the key that opened the hearts of people in the community"—including students, businesspeople, senior citizens, farmers, government officials, scientists, and other school personnel.

Purpose and Description of Project

Katherine Coady and Howard Herbert worked with fourth- through sixth-graders from three schools to help them gain a sense of history and pride in their community, learn nontraditional research methods, and exercise planning and organizational skills. Initially, teams of students chose various aspects of their community—geographical, historical, cultural, or political—to research as the topic of a pictorial study. In addition, students and teachers produced a photo album documenting the highlights of their project and drew from the team studies the material for a photo-illustrated guide to their community titled "Our Town." Finally, in the summer following the project activities, Coady and Herbert developed a teachers' manual so that colleagues could gain from their experiences.

In the course of the project, the students' activities generated such interest that it grew to include the participation of many other students in their schools and of numerous community members as well. These school/community activities were recorded not in still photographs alone, but on videotape and in motion pictures as well.

The teachers were delighted—and amazed—at the extent of community response to the children's exploration of their hometown. A farmer loaned a helicopter for aerial photos, officers of the municipal court allowed a fifth-grade group to reenact a day in court, the manager of a fast-food outlet permitted students to work behind the counter, and curators of the city's historic district participated as actors as a student screenplay was captured on videotape and in still photos.

As in many a learning experience, the teachers found that the project produced many more—and different—outcomes than they had envisioned. The students did not just research and record the past and current life of their community in museums and contemporary operations but stimulated their own events, such as the proclamation of "Tom Sawyer Day" and the planting of a colonial herb garden. Thus the students were not just passive observers but both relived the past and became active participants in numerous aspects of community life.

As a result, report the teachers, the students have gained an appreciation of the problems facing their community (such as traffic congestion), learned to communicate with and respect senior citizens (who were the source of oral history and historical artifacts), interacted with a wide array of adults in government and business, became aware of a variety of careers, began to understand the interdisciplinary nature of knowledge, and became sharp observers of the world around them.

In short, the "Know Your Town" project has been "a viable, exciting, and creative way to allow our students to break away from compartmentalized textbook learning and experience meaningful, interdisciplinary problem-solving," say the teachers. And it was the eye of the camera, they stress, that really opened the children's eyes.

Activities

In the process of developing their pictorial studies, the students were involved in an enormous range of activities, and not all students necessarily participated in all aspects of the project. As Coady and Herbert note, students at each school molded the "Know Your Town" idea to suit their needs and interests.

The students, in groups of five to seven, generated lists of local places, events, people, and things they wanted to know more about. The teachers then helped them plan local trips and walking tours, arrange interviews, attend government meetings, and participate in other activities.

At the Bowne-Munro School, the youngsters focused on the human and physical resources of the East Brunswick Historical Museum, which is in the state-designated historical district within walking distance of the school. Their activities, all documented on film included:

"A Day at the Museum," a tour guided by a renowned local historian.

Review of an art exhibit by a local artist, many of whose paintings show nearby sites.

A fireside chat with the owners of a house that has been designated a landmark.

Organizing, advertising, and assisting with a museum tour for the public.

Study of flower arranging (a traditional community recreational art) and presentation of arrangements to museum personnel and community resource people.

Planting a colonial herb garden in a plot adjacent to the museum and setting up an exhibit titled "The Spice of Life."

Studying the life and times of Mark Twain; producing a playlet adapted from "Tom Sawyer;" planning "Tom Sawyer Day," which involved students and teachers dressing as characters from the book and reenacting a 19th century festival; and showing a videotape of highlights from this event on the local cable TV station.

Writing and producing an original screenplay in which a child from today is mysteriously returned to the 19th century and meets her own grandmother as a child.

Memorial School students focused on the workings of local government. Their activities, again preserved on film, included:

Conducting interviews with municipal officials such as a tax collector.

Meeting and talking with an individual who had visited imprisoned relatives in the Soviet Union and comparing and contrasting the principles of democratic and totalitarian systems.

Observing courts in action and writing scripts and enacting a series of court cases "on location" in the court chambers.

Studying city planning, including such aspects as commerical blight, traffic congestion, planned vs. unplanned development, and making models of how various parts of the town may look in the future.

Central School students organized themselves into the "Rainbow News Team," and, as a roving journalistic crew, explored in photo and videotape essays such topics as: waste recycling efforts, recreational resources, residential development patterns, high-technology careers, and the districtwide sixth-grade Olympics.

From this rich reservoir of material, students and teachers then developed their community guide, "Our Town." They also produced photo displays and photo essays expanding on various topics for various audiences.

Materials, Resources, and Expenses

The equipment used included a Canon AE-1 35mm camera, a Panasonic ½-inch VHS videotape camera, a Canon Super-8 movie camera, a darkroom for black-and-white film developing, film for slides, prints, movies, and videotapes. Since much of the equipment was on hand in the district, the only major expenses were $300 for the AE-1 camera and $200 for film and processing. Costs of the field trips and other materials were absorbed elsewhere in the schools' budgets, and many goods and services were donated.

Outcomes and Adaptability

The project succeeded beyond all expectations, report Coady and Herbert. Its success is recorded in the students' research and photographs, the community guide to "Our Town," and, most of all, in the enthusiastic response of the participating students, the entire student population, classroom teachers, parents, and "the hordes of others who helped us and became part of 'Know Your Town,'" say the teachers. As one of the student-participants put it, "One of the things I learned was how important it is that everyone works as a group. I also learned that you have to be willing to put in time and effort in order for the play, skit, or movie to be a success."

The students learned nontraditional research methods, honed their planning and organizational skills, developed hometown pride, and became, through photography, sophisticated observers of their environment. In addition, the teachers add, town and school have developed real appreciation of each other's goals and problems and began a degree of interaction that will continue to benefit each. Coady and Herbert also emphasize that this project is adaptable to any school and community. Those schools that do not have the resources to branch out into videotaping and movie making could carry out many of the same activities in this project using only still photography. As Coady and Herbert say, all children "are naturally curious and have talents and interests they wish to explore" and all communities comprise "settings, stages, and laboratories for myriad learning experiences."

Utilizing Community Resources

Peter Szczap

Science Magnet School
Buffalo Museum of Science
Buffalo, New York

Subject: Community Studies/Science

Grade: 5–6

"Once teachers look beyond the four walls of their classrooms, the possibilities for an exciting program become easily available."

Purpose and Description of Project

This project was carried out by "helping teacher" Peter Szczap and five classroom teachers from the Science Magnet School's fifth- and sixth-grade component, located at the Buffalo Museum of Science.

Primary goals of the project were to have students (1) develop basic skills in such content areas as language arts, science, reading, and social studies; (2) gain an understanding of scientific methods and learn to use process skills (such as observing, classifying, and predicting) to solve problems; and (3) develop a respect for the environment and an understanding of the need for natural preservation.

During their investigations, students explored many aspects of the science museum and went on field trips to such sites as an aquarium in Niagara Falls and the Shale Creek Nature Preserve. Photographs were central to the students' studies before, during, and after their many learning activities. They also produced a wide variety of booklets, exhibits, and displays that not only reinforced what they had learned but can serve as resources for other teachers and students.

Activities

Given the number of teachers and classes involved in this project, it is not possible to list here all their specific activities. Below is a sample of the many units of study, but note that not all participants in the project were involved in all activities.

The Niagara Falls aquarium was a treasure lode for both students and teachers. They photographed marine organisms and animals and used these pictures to study vertebrates vs. invertebrates.

At Atwell Pond, students used water creatures for study and examined various types of life, such as water spiders and beetles. They photographed their findings, composed captions, and wrote reports that were compiled into a booklet.

Students visiting Welland Canal photographed the canal locks in a series of operations. They then had to sequence their photographs and explain how the locks worked.

In a social studies activity, the students compared the lifestyles of a preserved New England colony with those of a southern colony by studying photographs.

Another group of students made its own fossils by inserting lubricated objects into soft plaster of paris, removing the objects, and allowing the image to dry.

In a combination science, language arts, and reading activity, students read articles about dinosaurs and then had to answer questions about the giant reptiles by going to Science Museum dinosaur exhibits.

Materials, Resources, and Expenses

The use of community resources was, of course, the hub of this project, and Szczap says that personnel at the museum and outdoor sites were invaluable both during previsits and field trips. Parents also often participated in the field trips.

Cost items were four Kodak Instamatic cameras, film, processing, admission to some sites, and bridge tolls.

Outcomes and Adaptability

The youngsters did improve in the basic skills, process skills, and in appreciation of the environment. Student attitudes toward learning improved and many valuable resource materials have been created for use by other students and teachers.

Szczap concludes, "If the project is to be judged on the basis of parent and student response, then it was an unqualified success." The use of photography made the learning process more exciting not just for the students but for teachers as well.

While acknowledging that the average school is neither located in a museum nor has access to a daily bus shuttle, Szczap believes that photography can be profitably integrated into the activities of any school that is involved in even one field trip a year.

Island Heights—You're Beautiful

Cynthia Kinstler

Island Heights Elementary School
Island Heights, New Jersey

Subject: Community Studies

Grade: 5-6

"This project actually introduced itself to the students. They brought clippings regarding the award to class and asked for more information about what would be going on."

Purpose and Description of Project

The 19 students in this project, selected from volunteering fifth- and sixth-graders, photographed various aspects of their community—people, places, and things—and the town's history under the guidance of Cynthia Kinstler. They produced individual hand-made scrapbooks of their favorite photographs, along with explanatory captions; coloring books of drawings based on photographs that they presented to the school's second-graders together with a history lesson; and a slide presentation and speech about the project that was a highlight of the sixth grade's promotion assembly.

Kinstler says that not only did the student's sense of self-worth and their pride in their community increase—which was her goal—but that they demonstrated an unexpectedly high level of proficiency in both selecting their subjects and taking their photos.

Activities

The students and teacher began by setting a goal of 10 good-quality pictures per student, plus enough slides for the presentation at the promotion assembly. They then brainstormed areas of interest to be photographed, organized the list into people, places, and things; and broke into groups.

Kinstler then pre-tested the students on both photography and the history of the community, and the students set out to learn more about both topics. Various members of the community, including a historian for the county, showed slides and photographs to the class, which both highlighted historical aspects of the area and introduced students to the elements of good photography. Students also interviewed community members and reviewed printed materials and old news articles contributed by their families. The teachers then demonstrated and let them practice handling, cleaning, loading, and operating a camera.

The small groups now set off to photograph their particular areas of interest. Subjects included churches, trees, flowers, an art studio, an art gallery, a swamp, the post office, the river, the yacht club, the home of a famous artist, and the oldest house in the county.

While awaiting processing of their pictures, the students learned to sew and bind their photo scrapbooks. When the prints were returned, each student was allowed to select his or her 10 favorites to be mounted in the individual scrapbooks. Now came further research, and at last the articles to go with the photos were written, edited, and printed out on a word processor. The printed materials were then glued onto the scrapbook pages with the appropriate photo. Students also selected pictures they were particularly proud of and copied them with pen or pencil on white paper. They added historical information, puzzles, original poetry, and games to these coloring books and presented them to second-graders. They gave a history lesson and helped with the coloring and puzzles.

Final activities included putting together a slide show and writing a speech for presentation at the sixth-grade promotion assembly and the presentation of a framed photograph of their school to the board of education. The students were then post-tested on both photography and history.

Materials, Resources, and Expenses

Primary human resources were the county historian, two particularly knowledgeable senior members of the community, and staff at local photography stores. Kinstler provided her two 35mm cameras, and two other 35mm cameras and four disc cameras were supplied by parents. Slide and print film used was 100 ASA. Other supplies included a slide sorter, slide trays, tapes, a tape recorder, a slide projector, duplicating paper for the coloring books, and contact paper, legal paper, cardboard, and colored tape for the scrapbooks. Costs were $113 for film and processing and $12 for bookbinding materials.

Outcomes and Adaptability

Kinstler says that post-tests showed that students had significantly increased their knowledge about both photography and local history. There were also measurable improvements in language arts (such areas as vocabulary, composition, and editing), computer education (use of word processor and printer), and affective education (responsibility, decisionmaking). And, she adds, students were so enthusiastic that "the afternoon blahs simply *never* occurred."

The project should be replicable regardless of geographic area, according to the teacher, who says she recommends that "all teachers take some of the 'ho-hum' out of their lessons and put some 'flash' in."

Photograph Copying for Primary Source Historical Information (When Skiing Came to America)

Peter A. McKenna

Rumford Junior High
Rumford, Maine

Subject: Community Studies

Grade: 7

"All students on various grade levels were enthusiastic about projects that involve the use of cameras and taping equipment. They have the freedom of learning with 'hands on' equipment and self-designed projects."

Purpose and Description of Project

This special project involved about 40 students in exploring the history of recreational and athletic skiing in their community. They used old photographs and interviews in compiling their data. Peter McKenna hoped they would become "involved in the workshop aspect of putting history together—rather than just reading it out of a book."

Activities

An important aspect of the project was to use two types of primary source information: slide copies of old Winter Carnival photos and interviews with elderly residents who were actually involved with the early Winter Carnivals. As students searched for artifacts, pictures, and stories, they were encouraged to devise their own methods for gathering information. Some students interviewed grandparents and/or patients in nursing homes who remembered Rumford's early Winter Carnivals. Others searched for leads in old newspaper files. Using the school's Kodak Ektagraphic Visual Maker, the students easily and economically produced slides of the photos they found that showed the early days of skiing. These slides then were used to generate questions for interviews with the elderly residents. Occasionally, students used videotape equipment to record interviews and to copy old movies of the early days of skiing.

Students were evaluated on the time and effort they put into searching for artifacts and photos, and into gathering and transcribing interviews. The quality and uniqueness of the photos, as well as the excellence of the interviews, were also considered. A final evaluation of the overall program and a test to determine what had been learned completed the evaluation process.

Materials, Resources, and Expenses

Students utilized the Ektagraphic Visual Maker, color slide film, cassette tape recorders and tapes, Sony 3/4" videotape reels, and a carousel slide projector for their project.

The school's librarian/media specialist helped students set up photographic and recording equipment. The elderly interviewees were very cooperative in providing old photos and other artifacts, and in allowing themselves to be interviewed.

Outcomes and Adaptability

The students were very enthusiastic about a project that involved cameras and taping equipment. The self-designed projects built self-esteem and fostered cooperation among students at all ability levels. Most important, it brought happiness to elderly people who were given a chance to reminisce with interested young people, and it encouraged the students to listen to people describe how history was made. Students were able to acquire photography, communication, and transcribing skills; knowledge of the historian's profession; friendships with the elderly; and personal satisfaction. McKenna suggested that a large number of underachievers become involved in the project because it was unique and exciting.

Because junior high school students can operate cameras and tape recorders, and because all towns and cities have both a unique history and people who personally remember the past events, McKenna says that the project can be easily undertaken in any history class. He also found that subtle hints were more effective in getting students to work on their own than if he had presented a predesigned project to the class.

A Guide for Community Living

Kathleen Noneman
Peggy Lear Bowen

Traner Middle School
Reno, Nevada

Subject: Community Studies/Language Arts

Grade: 7-8

"Pictures act as a catalyst to stimulate students' interest in writing and to motivate them to develop a better descriptive vocabulary."

Purpose and Description of Project

Kathleen Noneman and Peggy Bowen designed this project to help their students become more familiar with the services and facilities of their community and to stimulate their interest and skill in writing. The group participating in the project included speakers of Spanish, Tagalog, Chinese, Vietnamese, and Tongan, many of whose schooling had been interrupted "by political, social, or economic upheaval."

During the project, the students had the opportunity to hear a number of guest speakers as well as to go on several field trips. Their picture-taking, say the teachers, not only helped the youngsters become more knowledgeable about essential community services but spurred them to write about these photographic adventures. Their products were individual "guides for community living," and they also contributed photos and compositions for creation of a class book on the same topic. The students developed a local area survival game in which problems are solved by finding the correct community agency.

In addition to the valuable personal experience the students gained with various aspects of their community, including health services, transportation, and recreation, Noneman and Bowen found that their students also got used to the process of writing, editing, and rewriting. They became more enthusiastic about producing compositions.

Activities

The project extended over a three-month period and began with a class demonstration by a professional photographer. He discussed several types of cameras and gave the students a hands-on experience. The teachers set up a display of an old camera and its parts. At this point, the students' experience trips began.

The students' picture-taking and writing exercises focused on several themes. The first dealt with transportation systems and included a visit to the airport and a one-and-a-half-hour tour provided by the city bus system. Students learned how to get around the city by bus and about airport operations. They took photographs of these experiences, and on returning to class, began prewriting activities that included coming up with as many words as they could relating to the transportation theme and grouping the words into categories. The categories of words and photos they had taken were posted on a felt-covered board in a "writing corner," which each student used at his or her own pace to compose paragraphs.

When the paragraphs were completed, the teachers projected them on a screen with an overhead projector so that the class could work together to suggest corrections. Corrected paragraphs were returned to the students for final work and for them to choose the pictures best typifying their writing. Each student mounted together the article and the photograph so as to make up a page for the student's community living guide. These prewriting and writing activities were repeated after each field trip or class visitor. Different displays were set up in the writing corner as the project progressed. Other exercises focused on health facilities, which included visits to the university medical center, public health center, and a dental office; government, which included a class visit by the state assemblywoman for the local district and student visits to the police station and a court; and business and finance, which included trips to a bank, a plastics factory, and a livestock show.

From the pictures taken during all these experiences and the paragraphs written about them, the students produced their individual and class community living guides.

Materials, Resources, and Expenses

Class speakers included a photographer, state assemblywoman, and representative of the Sierra Arts Foundation. Other teachers also cooperated by allowing Noneman and Bowen's students to piggyback on other field trips. Personnel at various city offices and businesses facilitated the class's own field trips.

Camera equipment used included two 35mm cameras and a Kodak Colorburst II camera owned by the teachers. The students used primarily instamatic cameras. Kodak 135 color film with an ASA of 400 was used for outdoor shots and an ASA of 1000 for indoor shots. Cost of film and processing into prints ran from $11.50 to $15.50 a roll.

Outcomes and Adaptability

The teachers report that the students became much better informed about their community and also more productive, interested, and skillful in their writing. The students' writing output increased threefold, and they were much more careful about errors. "They knew that papers would be subject to peer editing," state Noneman and Bowen. "They began to plan their paragraphs in advance and were enthusiastic about adding another page to their books."

Since writing is an integral part of the curriculum at all levels and all students need to know about their communities, the teachers believe that this project would be valuable at any grade level in any community. Even if cost is a limiting factor, they note, "there are many photographic experiences that can be found within walking distance of most schools."

Lone Grove: Window to the Past

Marvin Hamilton

Lone Grove Middle School
Lone Grove, Oklahoma

Subject: Community Studies

Grade: 8

"Even new students not native to this area feel a real part of the community now, since they interviewed senior citizens, helped take pictures of personalities and scenes, and researched the town's history."

Purpose and Description of Project

Marvin Hamilton guided five eighth-grade social studies classes in an investigation of their town's past, with the goal of increasing their knowledge about their coummunity and their pride in it. The students' final product, a slide/tape show, not only achieved this goal, reports Hamilton, but became "the talk of the school and the community."

In preparation for developing the slide/tape show, each of the students researched and wrote about some aspect of local history. This included work in local libraries, but Hamilton says that because written material was scanty, the students also went into the community to interview family members and other citizens. He says, "even shy and timid students" gained new communications skills.

Once the research had been done, students took slides of old photos, historical sites, and personalities who were involved in some aspect of their town's development. The script to accompany these slides was drawn from their papers, recorded by selected students and the teacher, and synchronized with the slides and background music. The final product has drawn not just requests for showings to community groups but individual requests for copies of the production.

Activities

Students wrote individual research papers on some aspect of community history after they gathered information from local libraries and personal interviews. They also wrote to people who had left the town or who lived elsewhere but had had relatives in Lone Grove. The resulting papers discussed points ranging from the history of old buildings to the building of the railroad and the establishment of the town's telephone system.

The youngsters went out to photograph actual sites and individuals and worked in library settings to make slides of historical pictures and other materials. They had to produce slides that would suitably illustrate the working script that they had developed from their research papers, and to shoot slides that would generate emotional effects as well as demonstrate facts.

Students and teacher then organized the slides selected for the final product, recorded the narration, mixed in music, and synchronized the narration to the slides. This effort, according to Hamilton, was particularly valuable in that it gave the students an awareness of the nature of creativity since the "script, music, and pictures were synthesized into a whole much greater than the sum of the separate parts."

Materials, Resources, and Expenses

The entire community served as a resource through information and photos for this project, according to Hamilton. The school librarian and library aide also assisted, not just with camera instruction, but throughout the project.

Equipment included a 35mm camera, two copystands, an instamatic camera that fit the copystands and a sound mixer. Film required included 14 rolls of slide film (400 ASA), four rolls of instamatic cartridge film (64 ASA), and three rolls of color print film. Since the equipment was available in the school media center, primary expenses were for film and development of slides and prints. The slides were $10 per roll.

Outcomes and Adaptability

Hamilton found that his students "learned about their local history, how to cooperate better with each other, how to take effective slides and pictures, and how to organize varied material into a unified whole." They also learned both traditional and personal research techniques, including how to gather information through interviews, and gained an increased sense of community involvement and pride.

Hamilton belives that any community could benefit from a similar student production about local history, and he points out that the project could be modified to require much less sophisticated equipment than he and his students had access to.

Community in Transition

Richard F. Erickson

Marple Newtown Senior High School
Newtown Square, Pennsylvania

Subject: Community Studies

Grade: 9

"The cameras intrigued the students and kept them motivated to complete their projects."

Purpose and Description of Project

As a group project, volunteers from classes in Contemporary American Problems photographed their community's historical sites and gathered old photos available from community residents. From these they were to create pictorial essays that not only traced various aspects of social change but also were artistic and creative. Richard Erickson's aims were to actively involve students in their own education and to provide them with opportunities to deal with and even create primary sources.

Activites

The ninth graders chose nine topics and divided into groups. They were trained in photographic procedures and techniques by the school's audiovisual consultant who utilized Kodak's educational film kits. After practicing the basic techniques, students visited their sites and took the photos. They also scoured the local library and the archives of the Marple Newtown Historical Society as part of their original research effort.

Erickson met with the students to evaluate the finished photos. Each group then classified and chronicled the photos, submitted a detailed plan for a final display, and, upon approval, began construction. Each group was required to submit a summary of what they had done, how they had done it, and what resources they had used, as well as bibliography. The finished essays were displayed at History Day 1984 at Temple University, in the school library, and at several locations around the community.

Materials, Resources, and Expenses

The students had at their disposal readily available community resources and local residents active in the historical society who shared information and photos. The school provided the cameras, copy stand, and lenses. Commercial developing was used to ensure quality. The final cost could be regulated by limiting the number of photographs or by developing the prints at the school.

Outcomes and Adaptability

Erickson found the students eager to create their own projects and to write their own history. All the essays were completed, and one won first prize in the History Day competition. The project appealed most to students who had an interest in the community. With student participation being voluntary, their enthusiasm remained high. The cameras intrigued them, and Erickson felt that the overall excellent quality of the photos was evidence of their increased knowledge of photography.

Because every community has a history and people who are willing to share what they have learned and collected, Erickson sees that this project has universal application. He thinks it could be implemented, although with more difficulty, with an entire class as long as students have sufficient access to cameras.

Wichita, Then and Now

Carol Webb
Annie Lowrey

Wichita High School East
Wichita, Kansas

Subject: Community Studies

Grade: 10

"The students' writing after the project is measurably more sophisticated than it was at the beginning of the school year. Attitudes changed as students progressed from 'halting and uninspired writing to . . . sensitive poetry. . . .' They actually began asking for more frequent opportunities to write."

Purpose and Description of Project

Carol Webb's and Annie Lowrey's English honors students were given the opportunity to participate in a project designed to enhance their writing and photography skills. The project allowed them to gather factual information they would later use to create an aesthetically pleasing product. Webb provided guest speakers, field trips, and numerous writing opportunities as her students worked toward their eventual goal of creating a slide and sound show. This show was to feature the students' own slides and original poetry written in response to cultural aspects of Wichita's past and present. In carrying out this program, the "most important objective was to make students feel good about their writing . . . ."

Activities

A local poet visited the class every two weeks during the first semester. The activities he provided were largely pre-writing in nature as he increased the students' awareness of sensory imagery with his vivid anecdotes, discussed aesthetics and the basics of art, and employed music as a stimulus to writing. A local architect showed the students her slide presentation of architectural phenomena in Wichita and accompanied the students on a scavenger hunt for these phenomena during a walking tour of a six-block area of Wichita's oldest homes. A professor of general studies at Wichita State University talked to the class about the life of a former chairman of the board of a local bank as well as that of a notorious bank robber who was active in the area from 1915 to 1920. He also arranged for the students to tour the bank chairman's home which had been designed by Frank Lloyd Wright. Then Wichita's mayor discussed her duties and the city commission's plans for future projects in Wichita.

Out-of-class activities included a tour of the Wichita Cowtown Museum and optional field trips for individual students. The students took slides on all class trips with the help of two senior photography students, and many provided film for their individual trips. These slides were used in stimulating writing exercises in class, as each student was asked to write at least two poems about Wichita, past and present. The slides were then sequenced and the poems taped with background music for the final slide/sound presentation to about 80 parents and community members.

Materials, Resources, and Expenses

The primary outside resource persons who contributed their time and knowledge were the poet, architect, university professor, and Mayor of Wichita. The two senior photography students not only helped the students take slides but also develped all the slides in the school's darkroom. Since the school supplied 35mm cameras and tape recorders, the only expenses were for slide film and tape cassettes.

Outcomes and Adaptability

The teachers evaluate the activities—the guests, the trips, the slide presentations in class, and the frequent writing opportunities—as worthwhile and believe that photography enhanced the writing process as well as the final product. Webb feels the appreciation expressed by their audience was the students' "most important evaluation." Both the audience and the students themselves were amazed at the success of their efforts. The goal of making the students feel good about their writing had been fully achieved.

Webb and Lowrey used the project with two classes but say it could easily be replicated on a smaller scale with one class. The basic requirements are simply something to write about, frequent writing and photographic activities, and publication of the writing in some form.

Sullivan County Folklore—A Study Using Still Photography (Slides) To Illustrate A Literary Presentation

Dorothy Sue B. Minor

Dobyns-Bennett High School
Kingsport, Tennessee

Subject: Community Studies/History

Grade: 9-12

"It was thrilling to watch the students become involved in the family and community sharing and the selection of stories that had never before been recorded as a part of written literature."

Purpose and Description of Project

Dorothy Minor worked with several groups of high school students to produce a slide/tape presentation on the folklore of Sullivan County. In the process, they studied folklore as a literary genre, researched and recorded authentic legends and myths of their own area, analyzed the relationship of such stories to actual history, and synthesized their findings into a continuous narrative illustrated with slides.

As a result of the project, reports Minor, "we learned a tremendous amount about folklore, photography, local and regional history, actual hands-on production work, and the wonderful feeling of success at the completion of an activity in which so many contributed so much." She says that students came to realize that literature "is part of life" and "developed a renewed respect for their own cultural heritage and an increased feeling of unity with family and community." An unexpected outcome was that students also got a "mini-course in history" because their development of folklore narratives allowed them for the first time to "see the names, dates, places, and stories that they had studied in their textbooks come alive in relation to our community," adds Minor.

Activities

The students began by studying folklore as a genre, using examples from Paul Bunyan to Dracula and focusing on such topics as folk music and old-time medical remedies. Students were then divided into groups according to their skills and interests to carry out the remaining activities. Each group's activities are outlined below.

The first group selected story subjects and then researched and wrote their stories. Minor stressed these stories must not be drawn from books or made up by the students but actually gathered from the recollections of parents, grandparents, or other older people.

Another group searched the library for historical documentation for these stories, and yet a third group developed the stories into a continuous narrative for the script.

A fourth student group spent evenings and weekends driving around the county to take slides of actual sites related to the stories or of scenes that would illustrate the proper mood.

As production of the slide/tape show actually began, other student teams (1) recorded the narrative and selected musical accompaniment and (2) made posters of the program titles and credits to be photographed for the show. The final activity was selection and organization of slides in correlation with the audio portion of the program.

Audiences for the final presentation have included other classes at the Dobyns-Bennett High School, classes from other schools, and members of the community.

Materials, Resources, and Expenses

The community was an essential resource for this project, stresses Minor, who points out that teachers, parents, and other citizens "welcomed us into their homes, their families, and their most private lives." They shared stories that had come down from generation to generation. Other local people helped the students research historical aspects of the stories, and a number of school staff helped with instruction in photography, editing, and technical advice.

Equipment used included a Canon AE-1 35mm camera, Nikkormat 35mm FTN, and 35mm and 55mm lenses. Recording was done with Memorex Max I tape and a Revox B77 stereo tape recorder, and sound mixing was done with a TEAC A-3440 with Sony Stereo Cassette Corder. Film used was Kodak Ektachrome color slide film 64, 200, and 400 daylight. (Specific cost data not provided.)

Outcomes and Adaptability

Minor says that the growth of the students' appreciation for their social and literary heritage "surpassed even our wildest expectations. What was to be a study, with the development of this program as a terminal product, has become so much a part of the lives of these students, these teachers, and this school that plans are being made to continue the program in the future."

During initial lectures, the teacher acknowledges, student interest in local oral history was "almost nonexistent." However, that interest reached "amazing and unbelievable" levels once students actually got involved with one-to-one dialogues with community residents as they ferreted out Indian legends and ghost stories; visited actual sites to take slides; and started re-creating the moods of the stories through visuals, narration, and music.

Minor believes that the supply of oral history and folklore is inexhaustible and is just waiting to be researched and recorded.

Is a Picture Worth a Thousand Words?

Alice Harrill

Waynesville Junior High School
Waynesville, North Carolina

Subject: English/Journalism

Grade: 8

"If I look at a photograph, I can easily write something about it. Seeing a picture punches a hole in my imagination sac." (Student)

Purpose and Description of Project

Alice Harrill challenged her students to answer the question, "Is a picture worth a thousand words?" as they photographed images, studied and practiced five different modes of writing, and compared their written and visual images. The 29 eighth graders spent 10 weeks on their project. During the first four weeks the students learned the basics of photography and took most of the required seven photos. Harrill's goal was to improve student proficiency in picture taking, creative writing, and visual awareness.

Activities

Harrill began the project with a lecture/demonstration on the 35mm camera and photo composition. She showed the class two Kodak presentations on photography and basic picture taking. Students were assigned to take one of each of the following types of pictures over the next four weeks: portrait, nature shot, animal shot, stop-action shot, three-part sequence, trick shot, and pattern shot. Each type of photo was explained and illustrated; students also gathered examples from newspapers to indicate their understanding of the assignment. Students worked on their photos at home, while in class they viewed Kodak slide shows on photographic composition, photographing people, and existing light photography.

The following photo/composition products were prepared and bound in individual student booklets:

1. After discussions, students wrote short essays comparing and contrasting writing and photography.
2. The class brainstormed a list of camera and picture-taking tips and techniques.
3. Students brought in their own baby pictures and wrote essays comparing their present selves with the babies in the pictures.
4. Using their nature shots, students wrote opening paragraphs for the novel.
5. Students used their portrait shots as the basis for a short character sketch.
6. The animal photos provided inspiration for narrative animal stories.
7. Students prepared a list of vivid verbs from their own knowledge as well as from a thesaurus and wrote a cinquain.

8. Students decided on what first-glance images came to mind when viewing their pattern shot and wrote a diamante on the pattern image vs. the reality of the object.
9. Students created original limericks based on their trick shots.

Harrill evaluated the booklets on the basis of understanding of the photo types, attractiveness of the photos, adherence to the assigned writing mode, use of vivid written images, and standard English usage. Each student also evaluated his or her own learning.

Materials, Resources, and Expenses

Two members of the local newspaper staff made contributions, a photojournalist described her photography and news reporting experiences, and the darkroom photographer demonstrated how to develop and print film at the newspaper's facilities.

A school-owned 35mm Nikon camera was used for pictures taken at school. Students supplied their own cameras and one roll of film each for photos taken at home. Student film, as well as the Kodak Tri-X and Kodacolor 100 and 400 film used in the school camera, was commercially processed. Harrill spent a total of $50.

Outcomes and Adaptability

Using the students' own photographs as the basis for teaching creative writing not only enriched a writing-poor curriculum but also proved to be very motivating. Student answers to the title question indicated real understanding of the relationship between the written word and the visual image.

Harrill's students showed improved photography skills and a more critical eye for photo composition by the end of the project.

Harrill concludes that her project is easily transferrable to other settings because the cost is minimal and the writing activities can be adapted to the performance level and age of any student.

Focus on Writing

Alice J. Gregg

Okay School
Okay, Oklahoma

Subject: English

Grade: 8-12

"Students discovered that pictures emitted emotions, and they attempted to recreate these emotions in their writings."

Purpose and Description of Project

The aim of "Focus on Writing" was to use photography to encourage creativity in writing by placing the students outside the classroom environment. Alice Gregg developed posters containing photographs, assigned writing in relation to the photographs, and developed an illustrated anthology of students' writing.

Activities

Using black-and-white photos, Gregg prepared five posters, one each on kite flying, the nearby countryside, basketball, the local park, and school activities. She chose only topics and photos the students could relate to. Each poster then became the source for ideas during poetry and free writing lessons.

During free writing, for example, the class examined the photos and discussed the activities associated with each. They then brainstormed ideas and spent 10 minutes on free writing. This was followed by small-group discussion on each individual's written exercise, a class discussion on the elements of good writing (including such aspects as conversation, suspense, and beginnings and endings), students' editing and revision of their work, and a sharing of the finished products with the class.

In the case of poetry, the lesson began with a discussion of imagery, alliteration, personification, repetition, and rhyme—in short, the elements that come together to make good poetry. This was followed by a timed writing period during which the students wrote poems based on ideas suggested by the photos. As students reviewed each other's work, they underlined phrases they particularly liked. Then each student rewrote his or her work in three different forms, with lines being longer or shorter, verses separated differently, or, perhaps, in an entirely new shape. Small groups selected each student's best effort to be displayed and included in Gregg's writing anthology.

The 30-page anthology included student-selected prose and poetry from Gregg's eighth- through twelfth-grade classes. One criterion for selection was that the writing had to complement the photos from the class posters; yearbook photos and relevant clip art were also used to illustrate the anthology.

Materials, Resources, and Expenses

To prepare the posters, Gregg used a borrowed 35mm camera and one roll of 36-exposure film that was developed and enlarged by a former student. Additional photos used in the anthology were originally taken for the school yearbook. A social studies teacher contributed the drawing for the anthology cover, and the printer who produced the anthology assisted Gregg in preparing the material for reproduction.

The anthology was an 8½" × 11" 30-page book with 17 photos and a plastic comb binding. The total cost was $358 for 100 books, which Gregg sold for $2 each to help cover expenses.

Outcomes and Adaptability

Gregg discovered that using photos of familiar subjects made it easier for students to get into the process of writing and to write something they could take pride in. They also were more motivated to complete and revise their writing so it could be included in the anthology. By combining writing with photography, Gregg helped students develop their writing skills, and the illustrated anthology gave them a product they could show with pride to family and friends. Because she thought writing and photography are subjective art forms, Gregg did not give a pre- or post-test. But she did note definite improvement in writing ability, as well as in spelling and grammar usage.

"Focus on Writing" could be used in any language arts class, according to Gregg. By using fewer or more photos, a teacher could simplify the project or provide a full semester of assignments. The anthology could also be limited or expanded as funds permit.

Using Slides to Focus on Writing as a Process

Irene Payan

Negaunee High School
Negaunee, Michigan

Subject: English

Grade: 10

"After seeing something from another part of the world, [the students] developed global awareness and added one more dimension to becoming citizens of the world."

Purpose and Description of Project

Irene Payan's sophomore students in a course entitled "Facing Life" were required to practice various types of writing—descriptive themes, poetry, biographical sketches, and short stories. For the first assignment—writing paragraphs—Payan devised an instructional sequence using slides to facilitate the writing, revising, and rewriting process. Payan was able to demonstrate to her students that writing was a process, not a finished product, as she showed them a series of slides three separate times—each time for a different purpose and each showing followed by student discussion and writing. By showing the slides in a darkened room, Payan hoped to focus her students' attention on the work at hand. And by separating the process of writing a descriptive paragraph into a series of steps and objectives, she could allow students to concentrate on one thing at a time and pace the lesson according to their progress, giving them feelings of accomplishment rather than frustration.

Activities

Payan showed her students a dozen slides of castles in Denmark, Spain, and Russia. The students shared their reactions orally for about two minutes, and each student wrote at least one opinion on his or her paper. Then students exchanged papers to check whether or not the written opinions were valid. A few of the students read their statements to the class.

After this exchange of ideas, the slides were shown a second time. This time the students were to look for and write down specific facts that supported their initial observation. While the students studied the slides, they added to and improved the content of their paragraphs. By this stage they had become more observant and more critical of their own work.

The fact that some students thought their paragraphs "still didn't sound right" led to a discussion of the logical sequence of ideas. The students discussed which details were most important—and thus should be shown or described first. The slides were reordered based on the students' suggestions and then shown to the class for the third time. Finally, students revised their paragraphs so that the specific details supporting their initial reactions were presented in logical order.

Materials, Resources, and Expenses

Payan used slides from her personal trips in other countries for this exercise. She found it stimulating to the students to view the castles she had photographed because they enjoyed looking at them and because they were seeing something unusual. Payan suggests that slides could also be provided by members of the community. The expenses were minimal.

Outcomes and Adaptability

According to Payan, "The students not only wrote good paragraphs or essays, they developed criteria for critical reading—their own work as well as others'." She noticed that the students utilized their powers of imagination and concentration more fully and that the good habits of communication reinforced by the project provided a solid foundation for later writing assignments. Because the students shared their work after each step, they became aware of the importance of others' opinions and they accepted each other's criticisms during these peer proofreading sessions more readily than the teacher's. They also learned to appreciate each other's differences as they saw how ideas could be developed in many different ways—none any better or more correct than any other.

Payan suggests that any collection of slides that reveals unique features of a particular place—for example, a local main street—could be used for a similar project. She herself has also used the same technique to facilitate other types of writing. She used close-up slides of flowers and leaves in a unit on haiku poetry. Later in the semester, she used a series of slides on a bullfight as the basis for student-written news items and narrative essays.

Santa Fe, A Portrait of Three Cultures

Marilyn L. Huber

Santa Fe High School
Santa Fe, New Mexico

Subject: English

Grade: 10–12 (Remedial)

"The project produced pride in their pictures, their cultures, their families and their writing."

Purpose and Description of Project

Marilyn Huber's project was designed to help her students learn about photography, learn more about their own and other cultures, develop a better self-image, and improve their writing skills. To do this, she focused on Santa Fe's rich cultural heritage—Indian, Spanish, and Anglo—but also discovered that her teenage students had their own ideas about what constituted "cultures," such as "low riders" (those with low-slung cars) and "jectors" (those living in low-income housing projects).

The outstanding result of the project, according to Huber, "was a newfound student pride in work. They considered the finished products as good as those from a 'regular' class." Students learned photography, even though quite a few had never taken a photo and came from homes without cameras, and also became more interested in writing assignments.

Activities

Huber introduced the project with discussions and presentations on Santa Fe history and culture, displays of professional photographs, and guest speakers on such topics as photography, graphics, and layout and design. She also took photos in every class and posted them on the bulletin board.

Students chose their topics and began to plan their own photo projects. Topics covered an enormous range—including a traditional wedding, ballet lessons, motorcycle racing, fiestas, scenic wonders, rock stars, Catholic saints, and horse raising. While the students' "magnificent plans" sometimes collided rather painfully with reality when they saw their pictures, this too was part of the learning process, according to Huber. They learned by comparing their photos with published ones, seeing what they did wrong, and applying new techniques for better results.

Once the school yearbook staff had processed all the film and provided the students with proof sheets, selections and prints were made. Huber or a photography student at this point pitched in to help any students who had not produced acceptable pictures.

Students checked their facts with history experts on the school staff and wrote final drafts to be typed by a teacher aide and by business students. The final step—that of designing their own layout and actually mounting the photos and compositions—was, according to Huber, the most enjoyable for the students.

Materials, Resources, and Expenses

Human resources came from both within and outside the school. School personnel assisting with the project included the librarian; an advanced English teacher who was also a photographer and local historian; teachers of Spanish, sociology, business, history, and journalism; and the school audiovisual specialist. Outside sources included a professional writer/photographer, a graphic artist, a local camera shop that demonstrated different print tones, the Place of the Governors Museum, and the Oliver LaFarge Library.

Students used all types of equipment, ranging from "Kodak Instamatics to ancient box cameras."

Outcomes and Adaptability

Huber reports that "the use of cameras opened a new world for these remedial students." She found that they learned at least elementary photography; that their attendance improved and discipline problems diminished. The project produced "pride in their pictures, their cultures, their families, and their writing," she concludes.

She adds that while she "intertwined this project into the required English writing and reading program," other teachers could adapt it to art, sociology, history, or almost any other subject. While Santa Fe may be unusual in retaining clear-cut manifestations of its three historical cultures, Huber suggests that any area has at least remnants of cultural differences.

A Cultural Study of Arkansas and Saline County for Eleventh Grade Non-College American Literature

Alma J. Hahn

Benton Senior High School
Benton, Arkansas

Subject: English

Grade: 11

"The photography element was the key to the success of the unit."

Purpose and Description of Project

Alma Hahn used this hands-on research and writing project to teach her students how American and English literature relates to present-day culture in central Arkansas. The unit included group field trips, creative writing, speaking activities, and displays—all illustrated or documented with photographs. Another purpose was to use the final evaluation conference to help students understand how a teacher evaluates this type of project.

Activities

The emphasis of the literature unit was on the influence of early English settlers as they traveled from New England across the Appalachians to the Ozarks. Following 10 days of class study, students divided into research groups and selected a topic to pursue from a list that ranged from historical sites to local ghost stories to the nearby aluminum plant. Two days were spent planning the projects which were to encompass original research, a written report, photographs, a class presentation, and a creative activity. Most of the work was done outside the classroom as students carried out research in school and county libraries, newspaper files, cemeteries, a local museum, private homes, and nearby Hot Springs National Park. As they documented their work with photographs, students called on the training given them by a history teacher (and professional photographer).

To satisfy the requirement for creative work, students chose an in-class activity—"tellin' tales," a form of oral literature dating from a period when most settlers could not read. Each group also gave a 20- to 40-minute presentation to the class on what they had learned. Their photos and reports were displayed for everyone to study. Hahn met with each student to discuss the evaluation sheet given out at the beginning of the project. The students were given good experience in self-evaluation as each was allowed to have a voice in deciding her or his grade after they compared actual efforts to previously set goals.

Materials, Resources, and Expenses

The resources needed varied from group to group, but most participants made use of libraries, the state's history commission, Hot Springs National Park, and personal interviews with local citizens.

A school history teacher/photographer discussed the art of picture-taking, demonstrated how to use the camera, and assisted with specific problems that came up during the project. Hahn spent less than $50 for the two rolls of film for each gorup and for processing.

Outcomes and Adaptability

The project provided these nonacademic students with an interesting and meaningful substitute for the traditional, required research paper. Student interest was sustained, and because they enjoyed their work, they accomplished more than they expected. The students' self-esteem was raised as other students, including those from advanced classes, showed interest in, and sometimes envy of, their work. Creative writing improved, and the project provided inspiration for the daily entries in the students' personal writing journals. Hahn found that the use of photography enabled her to see first-hand what the students were doing and it helped students who did not read and write well to express what they had learned.

Hahn suggests that this research unit works equally well for eleventh- or twelfth-grade students. The basic techniques employed, including the documentation of research through photographs, could be incorporated into science, history, government, social science, and math studies; and the project could be adapted "for any level from elementary students to college students."

North Dakota: Through the Eyes of Her Writers

Margaret Johnson

Rolla High School
Rolla, North Dakota

Subject: English

Grade: Secondary

"I believe almost any group of students would enjoy photography, but students who normally dislike school seemed unusually receptive and responsive to the unit."

Purpose and Description of Project

Margaret Johnson set as her goals acquainting students with North Dakota writers and helping them to improve their writing skills. To accomplish this, she designed a project during which her class would read books by North Dakota writers and prepare a slide presentation, with script, that illustrated the authors' views of life in the state.

Activities

Johnson assigned her students the books to read, and as they read, they were to select quotes that seemed to exemplify what the authors were saying about life in North Dakota. She gave her students some basic instruction in taking photographs and encouraged them to read further about photography techniques in the written materials she provided. They then walked around town taking preliminary photographs, noting as they went the subject, shutter speed, distance, and weather conditions for each slide. After these slides were processed, students were able to determine the best techniques and conditions for taking the final slides.

Once students had completed their reading, selected their quotes, and satisfactorily explained to Johnson what the authors were saying, they were allowed to go on the field trips and photograph appropriate subjects. Every student was involved in the photographic activities. The script, incorporating the quotes and relating them to the slides, was written and the commerically developed slides sequenced for the presentation. Because some of the slides did not turn out and there was no time to retake them, the final script had to be modified.

Materials, Resources, and Expenses

Two outside resource persons assisted Johnson: the local librarian who located books on photography and provided slide presentations as models for the students to follow; and Johnson's husband, a freelance photographer, who suggested ways of taking appropriate pictures with a limited area, critiqued the preliminary slides, and answered students' questions throughout the project.

The students shared 35mm cameras provided by Johnson and several of the students. Occasional use was made of the flash attachment and/or zoom lens. Buying the color slide film and developing and printing the slides cost $125.

Outcomes and Adaptability

Johnson described many of the 12 students in her class as in need of motivation to complete assigned work. She found this activity particularly motivating. Photography interested them because it was something different, and some students who "hated" fiction were quite willing to read about photography. These students enjoyed getting out of school on field trips, and because the related coursework had to be completed before they could go on the trips, they began finishing their work. The slides had to be taken only in the local areas, so students sometimes had to improvise, to think of creative ways to represent objects that were unavailable for realistic photography. Johnson summarized by saying that the unit's goals were accomplished and that photography proved to be a valuable classroom tool.

Johnson characterized the project as relatively simple to implement. She recommended taking the slides earlier in the course to allow time for any necessary reshooting before the final script is written. The activity could easily be adapted to a continuing project with monthly field trips throughout the school year. This would allow students to depict different seasons and, thus, different feelings. Johnson states, "I would recommend a similar project to other teachers, especially if they have difficult classes to teach." She suggests, however, a maximum group size of 20, although sometimes she found it difficult to oversee simultaneously her 12 students' activities on the field trips.

Writing to Photography/Photography to Writing

Steven Youra

University of Maine—Orono
Orono, Maine

Subject: English/Photography

Grade: Higher Education

"Students' comments and actions reflected increased insight as they began to see photography as rhetoric, as language, and to see the analogies between photographic and verbal expression. That understanding expanded their concept of literacy and encouraged them to explore new possibilities in their writing."

Purpose and Description of Project

Steven Youra developed a writing and photography project for students in his Introduction to Language and Literature course. He delineated two goals for his project: (1) to improve students' writing by incorporating photography into descriptive and narrative writing exercises designed to inspire more varied and creative perspectives, and (2) to enhance visual as well as verbal literacy.

Activities

Youra carefully designed a sequence of lessons and assignments aimed at increasing complexity of task and active student participation as well as increased verbal and visual satisfaction. Each activity was preceded and followed by class discussion about:

1. Advertisements: Youra explained to the students how words and photos can cooperate rhetorically. Students divided into small groups to discuss individual ads; then each group "taught" its ad to the rest of the class. Next, each student selected an ad and prepared an essay on his or her response to it, focusing on visual and verbal elements.

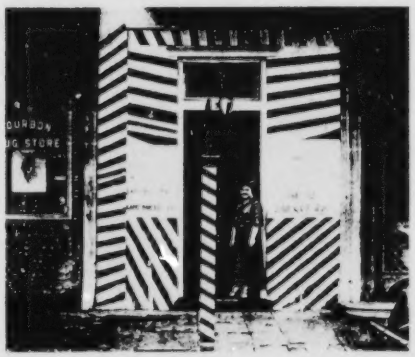
2. Old Snapshots: Pairs of students were each given an old snapshot (C. 1910) and asked to write in the "voice" of the person pictured, thus revealing personality, situation, and setting.

3. What I Saw: Students viewed a series of photos, wrote a paragraph describing what each showed, and then read on to discover others' reactions as well as the "real" situation.

4. Marcel and Gaston: Students reviewed two photographic essays, one on a farmer and one on a woodcutter.

5. "Looking at Photographs": Students read this introductory article by Bayer.

6. Portraits: Students viewed portrait collections by Arbus, Avedon, and



Karsh. Each student wrote a one-page essay on each collection in which he or she commented on what appeared to be "characteristic" of each photographer and analyzed one photo in detail.

7. Project Planning: Students prepared shooting plans for their portrait of a class member. These plans were critiqued during class discussion.

8. Final Project: Students spent about three weeks writing and photographing, reporting their progress and problems to classmates, and offering suggestions and critical reactions to each other's work.

Materials, Resources, and Expenses

Youra provided old snapshots for the second writing activity; the articles and portraits used in other activities were made available through the university's library. Students supplied a variety of cameras which were shared. Film was developed by a university staff member and local commercial processors. Youra estimated that each student took about 12 photos at a cost of about $10 per student.

Outcomes and Adaptability

To judge the progress of his students, Youra compared work done early in the term with the variety of descriptive and narrative writing options completed during the project. He found their writing significantly improved and "less advanced students made surprising strides, as they became creatively engaged by the connections between writing and photography."

According to Youra, "In carrying out this project, my students and I have discovered what might, in fact, be a fundamental principle of learning: creative, unconventional approaches to learning produce initial anxiety but subsequent pleasure."

Youra thinks it important that students controlled the production and use of the photographic subject matter in their final essays. This "valuable and unusual situation for students" gave them a strong sense of authority and responsibility which they would not get from activities that put them in the position of mere commentators on others' ideas.

Youra concludes that his project can be easily replicated and adapted to a variety of settings because it is not dependent on technical equipment and because the viewing materials used in the early activities are very flexible.

Photography for Creative Writing

Catherine A. Lutz

Georgia Military College
Kingsville Naval Air Station
Kingsville, Texas

Subject: English/Composition

Grade: Higher Education

"... the purpose of this project was to create excitement and interest in writing by using pictures they had taken as the basis for their themes.... This type of writing seemed to help the students overcome the fears they have toward writing."

Purpose and Description of Project

Catherine Lutz implemented creative writing activities based on student-taken photographs in her composition course as a way of generating excitement and an interest in writing among her students. Each student was given four writing assignments, each to be illustrated by a picture taken for the class: the first two themes were to express the thoughts of a person, either alone or in a group, with the students using light and composition to create a particular mood in each photo; the third theme was to be based on a picture of a road or path, with the student expressing her or his thoughts while looking down the road; the final picture was to be of an inanimate object with the theme expressing what the student imagined the object might be thinking if it could think. Lutz hoped that a challenging and yet enjoyable activity such as this would not only strengthen students' writing skills but also improve their attitude toward writing and their confidence in their own abilities to write a good theme.

Activities

To prepare her students for the writing/photography assignments Lutz held several class discussions. She provided example photos of people and objects, and they discussed how to use camera filters and how to create moods photographically through lighting and composition. The class made two field trips to a local park where students experimented with lighting effects as they photographed people, paths, and interesting objects for their themes. After the photos were developed and the themes written, Lutz's students discussed which photos they liked best and why. Some of the themes were also discussed in class.

Materials, Resources, and Expenses

Lutz's students provided their own cameras and film for the project. The only expenses involved were for the pictures she took for class discussion and transportation for the field trips.

Outcomes and Adaptability

Because Lutz's main concerns were to stimulate student interest and to develop creativity, she did not stress grammatical mistakes as much on these assignments as she would on later themes. First, she wanted to help students overcome their fear of writing, to convince them that each had something of value to say. After the students had develped confidence in their writing ability, she planned to place more emphasis on correct grammar, punctuation, and spelling. Lutz deems the project successful because of the enthusiasm expressed by the students for the assignment. They showed interest and eagerness as soon as she explained the project. She also found that the project activities fostered class involvement, class participation, and cooperation. A number of students also developed a continuing interest in photography.

Lutz suggests that her project could be used in almost any English class. The activities stimulate interest and creativity since each student is producing original writing as well as photographs. If cameras are not available for every student, she recommends dividing the class into small groups that could then share cameras.

Have Camera—Will Travel Through Time

Joyce T. Burke

George C. Marshall High School
Falls Church, Virginia

Subject: History

Grade: 10 (Gifted)

"At the photo sessions it was apparent the students were looking at the paintings with greater intensity than is usually the case."

Purpose and Description of Project

Joyce Burke's primary goal "was to structure an assignment that would stimulate creativity and encourage the skill of conceptualizing"—in contrast to so much schoolwork that is factual and material in nature. The class of 50 gifted and talented tenth graders was asked "to recreate and photograph a work of art that could represent a particular concept or theme" and to write a paper based on that theme. Students were required to develop a parallel between the possible symbolism of the work of art and some historical point of view.

Activities

Students were divided into four groups, each group being given one of the following works of art to duplicate as a group, and issues to address in the individual papers.

"The Duke of Urbino (della Francesca). Research the Duke of Urbino or another wealthy patron of the arts to gather information allowing you to refute or support Kenneth Clark's statement, "Great wealth is destructive of great art."

"The Ideal City." Build a three-dimensional model of the original flat piece made with inlaid wood. Examine the importance of perspective to the historian (as distinct from artist's perspective). How do historians avoid bias? How significant is the span of time between the original events and the historian's analysis? Does a good historian need information beyond factual or chronological data?

"The Moneychanger and His Wife" (Massys). Discuss the use and importance of art as an historical research tool.

"The Death of Marat" (David). Analyze the effect of assassination on a country's politics.

Each group selected a leader, gathered props, arranged and rehearsed each photo, and then photographed their subject.

The individual papers were developed in three steps: (1) initial group discussion to ensure understanding of the topics; (2) group meetings following individual research to discuss findings and refine the topic; (3) preparation of individual papers. At the end of the project, students took a day to share their reactions to the assignment, any problems encountered, and what they had learned.

Materials, Resources, and Expenses

Purchased materials were the film (plus the cost of developing) and the posterboard for the model. Parents contributed costumes and props, and two class members who were active in the drama department did the necessary makeup. The overall cost was $32.

Outcomes and Adaptability

Burke found that her students' awareness of such details as color, light, and arrangement increased as they analyzed and duplicated the works of art. They came to see how symbolic the visual arts could be as they developed parallels between what was seen and what was written. She also noted that the project became student-centered in nature. She realized that her suggestions might discourage or distort her students' creativity. Beyond offering some basic advice, Burke concluded "that a 'hands-off' attitude worked best."

Burke suggested that the project would be readily adaptable to other subject areas. For example, a psychology or sociology teacher could use Munch's "The Scream" or "Anxiety" as the basis for a discussion or paper on modern alienation or loneliness in society. A philosophy teacher could carry out a similar project using "The School of Athens."

"You Can't Catch Me!"—Introducing Young Children to the School Setting

Shirley F. Wyatt

Mansfield Township School
Port Murray, New Jersey

Subject: Language Arts

Grade: Kindergarten

"To the five-year-old, the bridge from home to school is not one easily traveled."

Purpose and Description of Project

School can be a strange and frightening place for the new kindergartener, but Shirley Wyatt's project uses photography to help bridge the home/school gap and familiarize children with school personnel and operations. And she begins this effort before the youngsters even set foot in "this big, wonderful, new, but awesome, place" called school.

A week prior to the opening of school, Wyatt writes a personal letter to each student, asking him or her to "draw me a picture of you" so that "on the first day of school I will know who you are." Receiving and responding to the letter gives parents and child a stimulus for discussing what the child can expect at school, and on opening day, the children are greeted by their own artwork on the class bulletin board. However, that's just the beginning.

The second phase of the project concentrates on having the children meet and get to know the professional and support personnel at the school, including office workers, bus drivers, custodian, cafeteria workers, and others. The focus for these introductions is an adventure during which the children prepare a gingerbread figure, find that it has disappeared, follow clues around the school, and eventually recapture the elusive treat.

Finally, Wyatt adds an extra magic touch to the children's experience by re-creating their prospective first-grade teachers' poses and taking more photographs—but this time with a gingerbread figure somewhere in the background. Then she posts these photos and waits for youngsters to make their miraculous discoveries.

The teacher finds that this three-pronged use of photography helps her students more quickly become comfortable at school, develop a good self-image, learn sequencing of activities, and practice visual discrimination. In addition, they learn about the physical layout of the school, get to know school personnel and understand their roles, and come to appreciate the uses of photographs to record events.

But, most important, concludes Wyatt, the project helps children come to view school as a place "where something wonderful will happen."

Activities

Activities in this project fall into three phases:

Phase I—Children receive letter from Wyatt and return a drawing of themselves in the self-addressed, stamped envelopes she provides. These drawings are displayed on the bulletin board on the first day of school.

The class discusses the drawings, and the teacher takes instant photos of each child to add to the display. The next day, she takes a class photo and the class discusses the sequence of events that led to the class picture. The children act as models for creation of a photo essay about what has happened.

Phase II—Teacher and students prepare gingerbread batter and cut out a large cookie. They take it to the kitchen and meet the cook, who is to bake it. Since the cookie will not be ready until the next day, the teacher ends the activity by reading the story of the "The Gingerbread Man," which is designed to produce speculation that the children's cookie, like the figure in the story, might be a runaway.

When the class returns to the kitchen, the cookie is indeed missing. A batter-smudged note directs the children to the school nurse. While they are searching her office, they learn about her equipment and how she helps children. For several days, they visit other school "helpers" and continue to take photos and be photographed by the teacher. The clues that carry the children on their search and the photographs are added to the bulletin board.

At last, the cookie is found in the main office, bulletin board photos are used to review the sequence of activities, and the children write a thank-you letter to the school staff and display it in the lobby. They also draw five-foot high figures of the school staff members, using the photos they have taken to review body parts, names, special clothing, etc., and display these likenesses in the classroom.

An open house concludes Phase II, and parents are invited to take home the child's initial drawing of himself or herself, along with the first instant photo of the child taken by the teacher.

Phase III—In preparation for an orientation visit to first grade, the children discuss their disappearing/reappearing gingerbread figure, bake gingerbread cookies for the prospective kindergarteners who will be visiting their classroom, and decorate paper gingerbread figures for the bulletin board. They also practice using individual non-instant cameras.

The children visit the classrooms and teachers they will have in the first grade and photograph the teachers. At the same time, preschoolers are visiting the kindergarten room, receiving their orientation, and receiving their snacks and gifts.

Later, Wyatt re-poses the first-grade teachers with a gingerbread figure somewhere in the background. While these photos are being developed, the children review their orientation experiences, and "recycle" some of their activities by meeting with and photographing such people as their music-teacher-to-be and the school cooks, who teach them cafeteria procedures.

Finally, the "doctored" photos come back and are posted. The children, who Wyatt says are still "seeing imaginary footprints and smelling bogus aromas" of the gingerbread figures who mysteriously appeared in their photos, get a photo as a keepsake.

Materials, Resources, and Expenses

School personnel were essential resources for this project, according to Wyatt. Among those who participated were the cafeteria staff, custodian, school secretaries, bus driver, school nurse, administrators, and librarian.

Cameras used were the teacher's Kodak Colorburst and 15 Diana cameras that she borrowed. Eight 10-print packs of instant film were used, and five rolls of TX-120 film. Other materials were stamps, paper, envelopes, gingerbread mix and mold, utensils for batter, chart paper, markers, stickers, crayons, construction paper, and Kraft paper. The total cost for 30 children, according to Wyatt, was $125.

Outcomes and Adaptability

Wyatt finds that the children get so involved in their photo-recorded adventures that the "jitters of starting school are left far behind." They also gain a spirit of togetherness and are exposed to the magic of photography. Because the school is located in an area with a highly transient population, Wyatt believes that it is especially important that her students gain a feeling of instant acceptance and quickly learn school survival skills.

The photographs that are taken throughout the project help confirm the children's concept of self, notes the teacher, and the youngsters develop a positive image of school because they quickly get familiar with their physical environment and the people they can turn to for help. They also learn teamwork and to discard their own fears in their concern about their lost comrade—the gingerbread man.

Wyatt also finds that the children display an immediate willingness to go outside their own classroom and to interact with new people. The continuing thematic involvement of the gingerbread figure and the use of photography help the children with recall and sequencing activities. And perhaps most important, the children develop a level of self-confidence that makes them eager to proceed to first grade.

The teacher notes that others can use this unit in whole or part since it breaks neatly into three activitiy blocks. It could be expanded to include not just school but community "helpers." Teacher and students could also take part in the photo processing and printing if darkroom facilities were available at the school. And, of course, other teachers could focus on other themes.

Photographs for Process and Product: Language Experience Pages

Caroline K. Winkel

Clifton Avenue School
Lakewood, New Jersey

Subject: Language Arts

Grade: K (Monolingual/Bilingual and Remedial)

"The number of fingerprints, smudges, and dogeared corners on the Language Experience Pages may be the most valid measure of their worth."

Purpose and Description of Project

Caroline Winkel used photographs of her kindergarteners at work and play to create Language Experience Pages (LEPs) that include captions in the children's words, as dictated to the teacher in the form and language most comfortable for the children. "These personalized, illustrated texts were then used to motivate reading and to present printed language to a bilingual group and a monolingual one," explains Winkel.

The teacher stresses the importance of using an instant camera to immediately capture and retain the children's interest in the activities being photographed so that they are eager to supply captions. She also allowed the children to occasionally take photos to be used on the sheets. The captions were color-coded according to whether they were in English or Spanish, since most of her students were Hispanic, with varying degrees of bilingual proficiency.

Winkel used the pages to supplement the core reading curriculum and also made them available at all times for "choice reading." She found that they "were more inviting than other reading material because a) they were authored by the children and b) the illustrations were instant and literal in a way that only photographs can be."

Activities

According to Winkel, the beauty of the project is that it is so simple while also proving so effective in using the children's interest in their own photographs and activities "to motivate a positive attitude toward and interest in print." The basic procedure is as follows:

Photograph or have a child photograph a classroom scene or event—children at work or play, at arrival or departure, during routine activities or on a special occasion, candid or posed.

Mount the photograph on a sheet of tagboard and ask an individual child or a small group to comment on the picture so that the teacher can use what they say to write a caption.

Use the pages in reading exercises and have them available for the children to browse through. Winkel says the photos stimulated language use as the children developed the initial captions, later provided the context in which to search for particular letters and words, and continued to generate further language as they were studied and discussed.

Instructional activities based on the pages included word attack/phonics skills, which called on the youngsters to identify particular words, sounds, or letters; comprehension, which required them to create alternative captions or group pages according to different themes; and language development, which had the children suggest additional events to photograph and discuss the photographic process.

Materials, Resources, and Expenses

Winkel used her own instant camera and such school materials as tagboard and masking tape to construct the pages. Only cost items were felt-tip pens, film, and flashbulbs, which she says amounted to less than $50 over a four-month period.

Outcomes and Adaptability

Winkel says that "the reading and reading-like behavior demonstrated by my kindergarteners were testimony to the effectiveness of the LEPs in motivating a positive attitude toward print." She notes that the children "pored over the loose pages during playtime as well as during reading choice time" and that "individual pupils, almost-readers as well as readers, asked to read pages to the whole class." She also found that the children "constructed ever-more-elaborate projects" with their blocks and Tinker Toys in the expectation of being photographed.

The teacher also believes that the adaptability of LEPs is virtually limitless. She advises that the pages can be used successfully with any group of children who have had little exposure to print, whether because of age, socioeconomic background, and/or learning problems.

Adding "Snap" to Language Arts

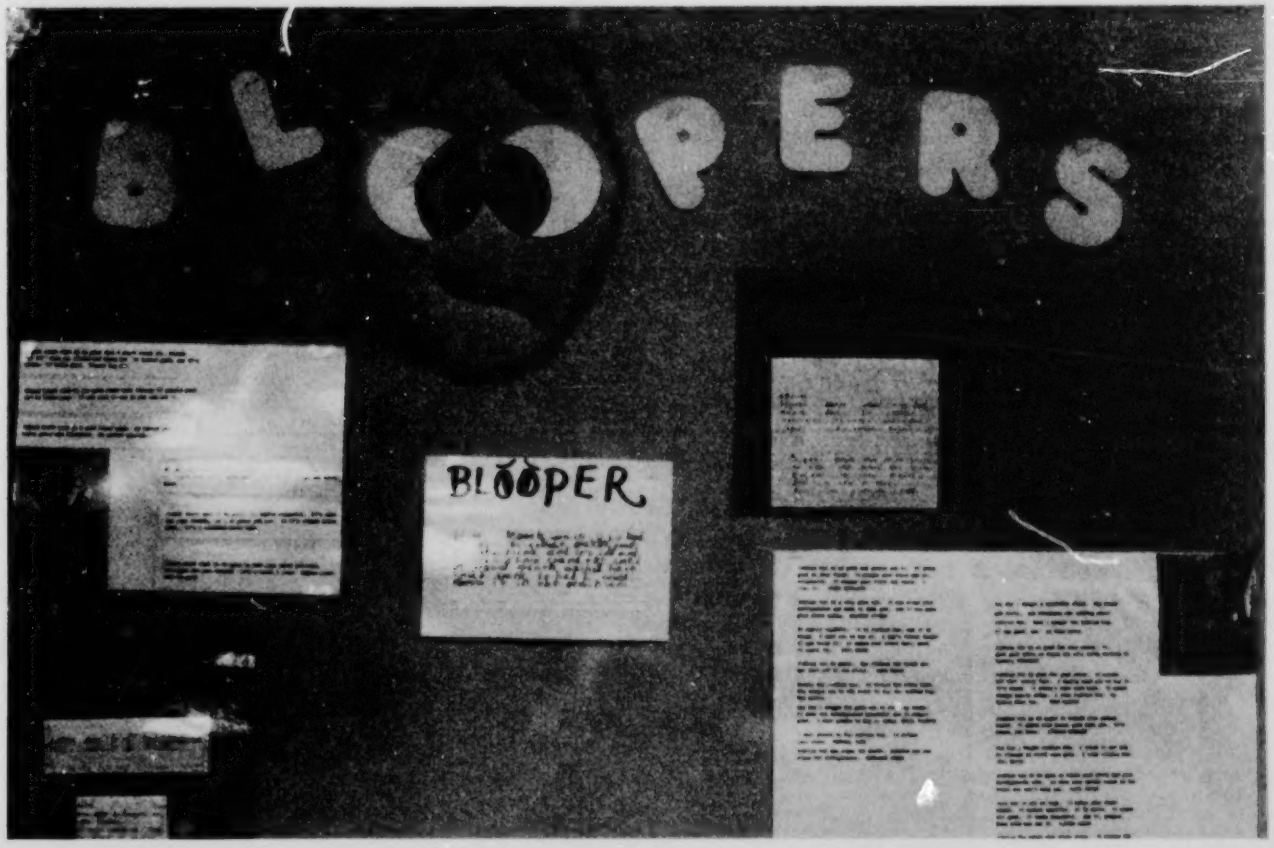
Marti Westover Schutz

Robinson Elementary School
Monroe, Louisiana

Subject: Language Arts/Writing

Grade: 1

"The novelty of using the camera created instant enthusiasm for the project. The enthusiasm endured because everyone was so involved and everyone experienced success in all phases of the project."



Purpose and Description of Project

Marti Schutz's first graders took photographs of themselves, animals, and objects and used these photos as springboards for writing stories, plays, photo captions, comic strips, ads for products, and greeting card messages. Children who were convinced that they "didn't know how" to write creatively became accomplished authors and, as a result, gained confidence and self worth.

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Among the language skills the youngsters acquired or strengthened were recognizing main ideas, cause and effect, reality and fantasy, and synonyms and antonyms; sequencing; predicting outcomes; drawing conclusions; and relating reading to illustrations, according to Schutz. The children also took pride in the photographic skills they developed, adds Schutz, and "were especially thrilled when the third grade classes visited the room and complimented them on the work." She noted that an extremely quiet child "produced an amazing flow of chatter for her puppet and another who had not spoken in complete sentences for most of the year became our favorite puppeteer."

Activities

Schutz first introduced the children to the camera and accessories such as flash, cable release, tripod, and various lenses. An amateur photographer visited the class to demonstrate how the equipment worked and allowed the children to practice.

Writing activities began by having the children look through books to get ideas for story titles and choose six they wanted to illustrate. The youngsters made some props themselves and brought others from home. They studied photos Schutz brought in for discussions of focus and composition. The class was sorted into committees to set up the shots and take the pictures to suit such titles as "The Frog and the Elf" and "Mardi Gras." In the process, they also tried out different lenses and decided that the telephoto lens worked best for their purposes.

With photos and titles in hand, the children then spent about two weeks writing stories to match. The children's stories on each topic were gathered into booklets, with the motivating picture and title on the front. The booklets were available on the activity table for the children to read, and they were also allowed to read the stories to other classes. One of the stories was chosen as the basis for a sequencing activity, with photos being taken for each main idea of the story and then mounted on the magnetic board in sequence as the story was retold.

According to the teacher, the children's favorite activity was "Puppets and Plays," in which they photographed each other posing with toys and other props, cut out the photos, and stapled them on craft sticks. Working in pairs, the children improvised dialogue for the puppets of their choice. The teacher wrote the dialogue on the board and had the children retell the story in the correct sequence. The children were "amazed that this game had resulted in the creation of a play," according to Schutz. The children then decided on titles for these plays, and the teacher typed some of them and displayed them in folders with the photo-puppets.

In other exercises, the children used photos left over from their earlier projects to create a "That's Incredible" photo montage of fantasy scenes, such as a boy in a large boot and children reading to bears, and then wrote stories based on these creations. They took additional photos, wrote group stories, and independently wrote math problems based on these "Math Monsters." Again using left-over photos, they developed a rebus story tying together several unrelated shots. They also studied advertisements and turned them into "Bloopers" by substituting opposite words for such frequent advertising terms as "good," "soft," and "clean"; wrote their own ads and bloopers to go with photos they took of such products as mouthwash; and developed displays of antonyms.

Among their final activities, the children took photos of themselves and wrote messages to create Mother's Day cards; practiced turning some of their stories into plays and vice versa; and used cut-out photos and speech balloons to make a comic book.

Materials, Resources, and Expenses

Among human resources were an amateur photographer, the school librarian who supplied reference books, the French teacher who was a resource on the Mardi Gras, and sixth graders who helped the children with spelling. Parents and older siblings also helped children who wanted to take puppets home to write stories about.

Equipment included the teacher's 35mm camera, flash, cable release, tripod, and various lenses. She purchased nine rolls of color film, folders for booklets, construction paper, notebook paper, glue, flash batteries, markers, 8 × 10 envelopes, and craft sticks. Expenses totaled about $130. Materials were laminated at the school media center.

Outcomes and Adaptability

Schutz concluded that testing showed that her children had grown considerably in vocabulary and in their understanding of main ideas and sequencing. She also saw a noticeable improvement in daily reading grades and discovered in oral questioning that the students demonstrated "an amazing retention of the basics of photography." In addition, "with the photographs promoting a flow of ideas, the children realized they *could* write stories, plays, and more" and took great pride in their accomplishments.

The teacher believes that all the activities of her project "could be used in any first grade class and could be adapted for third and fourth grades too. Judging from the changes in behavior that I noted in my class, any child with a self-image problem (slow learner, handicapped, emotionally disturbed, extremely shy) would benefit from this project."

First-Grade Photography

Velma Kingsley

Holland Elementary School
Holland, Ohio

Subject: Language Arts

Grade: 1

"The marvel is that young children are able to produce such good pictures with only a little instruction on a simple camera and also to write such interesting sentences legibly."

Purpose and Description of Project

Velma Kingsley and her 24 first-graders took photographs of each other, school workers, and special events during the school year, wrote about the photos, and created four group books to be kept in the classroom and the school library—plus small individual booklets to take home to parents.

The activities leading up to compilation of the books were designed to improve the students' handwriting and composition skills, their reading comprehension and vocabularies, their self-concepts, and their understanding and appreciation of the people who make a school work. The students' products included:

"First Grade, Holland School," which contains snapshots of each student.

"School Workers," which features photos of various staff members, from the director of instruction to a cafeteria worker.

"Class of '95," which includes candid shots of the children at work, along with the students' own stories about themselves.

"The Year in Review," which highlights special events such as parties and field trips.

Activities

The teacher took initial snapshots of the students to stimulate the writing of captions by the class about each child. These photos were mounted and displayed in the hall outside the classroom before being laminated on pages with the captions and sewn into contact paper-covered cardbook bindings. The book was an "instant reader," says Kingsley, "because all could read what they had written themselves."

Student-photographers were chosen on the basis of the best handwriting as the children copied the group-composed article about this and subsequent interview subjects. "Handwriting made a drastic change for the better," notes the teacher. When interviews were complete and photos taken, they were mounted, laminated, and bound into books.

The third book included photos of the children involved in various activities and entailed each child writing a considerably longer article about his or her likes, dislikes, and future plans. These longer items were typed by a parent volunteer before being laminated and bound with the photos. Since a new camera had been purchased about this time and the children took additional pictures, they had enough to use the best ones in the class book—"Class of '95"—while combining the others with student writing in little "All About Me" booklets to take home.

The success of the first three books now inspired yet another—"The Year in Review"—to preserve photos of the many special happenings the children had taken part in during the year. All the class books will be kept in the classroom except for "Class of '95," which was donated to the school library.

Materials, Resources, and Equipment

Human resources included school staff, school secretaries, parent volunteers, and Kingsley's husband, who taught the children about simple camera mechanics. Cameras included what the teacher describes as her "cheap little flash camera" and a Kodak 600 camera that was bought later. Both used ASA 400 fast film. Materials for the books were available at the school; the camera, film, and developing cost about $150.

Outcomes and Adaptability

Kingsley found that the books stimulated reading, that even students

"whose handwriting seemed hopeless made definite improvement and progress, that story and sentence composition had positively improved the children's writing skills, and that improved attitudes and self-image were demonstrated through fewer discipline problems and more pride in accomplishments and learning on their own."

The teacher also believes that any class can use the camera to elevate self-esteem and motivate writing. Adaptations of difficulty could be made for higher grades.

Project Pride

Megan S. Price

Culver Elementary School
Evansville, Indiana

Subject: Language Arts

Grade: 1

"Project Pride caused Culver School to be neater, cleaner, and more organized just by the fact that roving photographers were on the loose!"

Purpose and Description of Project

Megan Price and her 27 first-graders set out to learn more about the operations and personnel of their school and to share what they learned with other students and teachers and the community at large. Their photographic odyssey culminated in the creation of a three-sided mural made up of 4' × 6' display panels with appropriate captions for the 65 color photos covering these panels.

Price's project was designed not just to instill in her students a sense of pride in their school but also to reinforce the importance of the recently completed school as a commitment by the community to an economically depressed area in the inner city. Other goals were to help the first-graders learn about the personnel, services, and special areas of the building; improve the youngsters' language and grammar skills.

In the course of the project, says Price, the students gained skills, confidence, and pride, and other classes became so much involved that they organized special events just to "get in the picture." Their imposing mural now stands in the central entrance of the school and is the center of attention among students, teachers, support staff, parents, and other visitors to the school.

Activities

The project went into action after only five 15-minute discussion/demonstration lessons on camera operation—even though none of the students had ever taken a photograph. Students practiced handling and operating a box camera first, moved on to 35mm equipment, and then ventured out on their roving reporter assignments (accompanied by an adult).

During their photo excursions, the students took pictures of different areas in the school, of special events, and of people doing things—from lunchroom personnel during food preparation to students using shop equipment and computers. Class discussions were held to plan the subjects needed for the display.

The children were also very much involved in the final selection of shots to be printed from contact sheets. They learned about how to judge technical qualities, such as focus and composition, as well as to suggest how photos should be cropped. An overall selection factor was the relationship of each shot to the theme of school/community pride.

Once the final enlargements for the mural had been printed, the students worked on captions to complement each photo. They had practiced by writing about each photo they had taken. The mural that displayed all their hard work included at least one photo taken by each child and was constructed of three large panels formed in a triangle.

Materials, Resources, and Expenses

In addition to cooperative school personnel, the primary human resource for this project was a nearby university professor who not only loaned the 35mm camera equipment necessary but processed the film, printed contact sheets, and printed enlargements of various sizes up to 8" × 10". Seven rolls of Kodacolor VR 100-36 and VR 400-36 film were used. Costs were kept to $200 since the professor's services were kept to a minimum.

Outcomes and Adaptability

Price reports that her first-graders learned to: identify personnel in the school; operate a camera and select photos that are of good quality and convey the desired message; and developed language and grammar skills through writing about their pictures and preparing thank-you notes to those who cooperated with their efforts. The youngsters no longer viewed the school "as a huge, impersonal facility," says Price. "They became more concerned about the appearance of the school," she adds, "and regularly picked up trash and cleaned writing from walls." In addition, since the school is used for many community functions, the students' mural was the topic of much discussion and pride among adults.

Price believes that this kind of project could be valuable for any school as a means of building pride and promoting accomplishments. After all, if first-graders can get the job done, think what exciting modifications older students could come up with.

Lights—Camera—ACTION VERBS!

MaryLou M. Shortess

Farmersville Elementary School
Easton, Pennsylvania

Subject: Language Arts

Grade: 1

"One child volunteered to bring her toy telephone to illustrate the verb call. The next morning, she proceeded to haul a real princess telephone with all sorts of dangling wires from her bookbag, explaining that 'we couldn't find my telephone this morning, so Daddy just took this one off the wall.'"

Purpose and Description of Project

In this project, MaryLou Shortess' 22 first-graders created their own learning materials by dramatizing for the camera demonstration of 24 action verbs in the future, present progressive, and past tenses. Slides and prints of these verb dramatizations were used in the class in both group and individual situations for matching tenses (Brandy will eat her lunch, is eating her lunch, ate her lunch), sequencing, reading, writing, and especially for spelling.

"Every child had the chance to become a starring actor or actress as I photographed them," notes Shortess, who adds that "they became real hams in the process" and "were eager to use the slides and prints." As a result, the teacher reports, tests showed "tremendous spelling growth," and the children also evinced great pride in the fact that they had produced materials that would also be used by other classes and shared with their parents.

Activities

The teacher began by selecting 24 action verbs in four categories—base words unchanged when adding endings, base words ending with silent *e*, base words requiring the doubling of the final consonant before adding an ending, and base words with irregularly spelled past tenses. Using words not on the project list, she then defined action verbs and got the children involved in discussing how the words could be illustrated through dramatic action. Then the children were assigned one of the project verbs to take home and discuss with their families how it could be illustrated.

Shortess showed the children how the camera worked and photographed the individual children doing their assigned actions in the present progressive tense. The children critiqued the resulting slides and tried to come up with more creative ways to show a viewer what they intended with future and past tense verbs, including the use of props. Prints were then made of the slides and laminated for use with accompanying sentences mounted on posterboard. The sentences, which could be made into little action stories, were used with the prints by small groups and individuals for matching, sequencing, and reading to each other and the teacher.

The class also used words from the slides and prints for their "Dandy Dozen" spelling lessons, which included writing the words for home study, using them in sentences, spelling words with a friend, and taking a spelling test dictated by the teacher. Reviews required matching the three tenses of the base word and determining how to add a particular ending.

The final activity was an open house for parents that spotlighted the children's materials, both slides and prints, and included a brief slide/narrative presentation the teacher had put together about the project.

Materials, Resources, and Expenses

The teacher received some initial advice from the school audiovisual director about film and lighting and was also assisted by her husband, who photographed aspects of the project in which she played a direct part for the slide/narrative. Equipment and materials included the teacher's Nikon FG 35mm camera with flash, Kodak ASA 64 slide film in 36-exposure rolls, posterboard sentence cards, and clear Contact to laminate the cards and the prints made from the slides. Cost of film, developing, Contact, and posterboard was about $100.

Outcomes and Adaptability

Pre- and post-tests revealed that the children progressed enormously in their ability to spell the three forms of the 24 action verbs studied, reports Shortess. Initial average score was 33 percent accuracy, which shot up to an average score of 95 percent by the end of the project. The children also scored at a 92 percent accuracy rate on words that had not been taught but that illustrated the same basic ways that endings are added. Even more impressive than the scores, says Shortess, " is the enthusiasm and delight which I have seen evidenced in the children's work on this project."

Shortess suggests that the project could be used without change for grades one through three and for remedial work with older children. And with variations, she believes that the approach is adaptable to all grade levels.

Focus on Me

Dorothy M. Estis

Russell Elementary School
Broomall, Pennsylvania

Subject: Language Arts

Grade: 1

"My students insisted that I sit on the carpet for the reading of each book because the student-author was the VIP of each day and should sit in the teacher's chair!"

Purpose and Description of Project

Dorothy Estis' primary goal in this project was "to actively nurture the development of positive self-concepts in my students through the use of realistic images that could only be provided by a camera's eye." The central activity was for each student to compile a "Focus on Me" book of photographs and narrative passages to show him or her as a special person.

The development of the books helped the children to realize that each had special traits and talents, according to Estis, and the books then became the stimulus for other self-awareness and learning activities. On the day each child read his or her book to the entire class, that child was VIP for a day, being accorded the spotlight of attention as well as special privileges. The children also used the books to understand the similarities and differences of their own lives and their families and as text for reading, language, math, art, and social studies exercises.

Estis says that the most significant outcome for each child "was a positive feeling of self-worth that was verified by significant others—parents, teacher, and classmates." However, she notes that reading ability and attitude toward seatwork (using the "Focus on Me" books) also improved.

Activities

Estis grouped the project activities into five major categories:

Self-awareness—She began with a brainstorming session to stimulate the children to think about what they knew about themselves and recorded their likes and dislikes on charts that served as a basis for discussions of how each child was different yet similar to his or her classmates. She then explained the camera project to them, sent home a letter of explanation to parents, and distributed cameras, film, and flashbulbs, which the youngsters were allowed to take home.

Language Arts—Each child reviewed his or her photographs, arranged them in the sequence they were to appear in the book, and dictated accompanying narrative passages to a parent volunteer, who recorded the story line. The children used the books to locate and classify

words (for people, animals, etc.); to locate pronouns and verbs; and to write riddles about themselves that were set up in a learning center for others to read and match to a picture of the person described in each riddle.

Math—The class constructed a bar graph based on the books that included such categories as youngest child in family, oldest child, plays, video games, etc.

Social Studies—As "person of the day" each child read his or her book to the class. On this special day, the child led the flag salute; chose lineleaders, doorkeepers and messengers; put stars on the board as the class earned them; and wore the VIP headband that depicted special aspects of himself or herself. As the class listened to the book, they wrote positive comments about the author on hand-shaped paper and taped them to the author's back, thereby giving him or her a "pat on the back." The VIP also covered his or her shadow that had been mounted on the bulletin board with a self-portrait to indicate that he or she was no longer just a silhouette to the class. The class then used the books to research and write about different family sizes, the interests and talents of their classmates, and ways that family members help each other.

Materials, Resources, and Expenses

The head of the school's Learning Resource Center both made cameras available and provided facilities for a parent volunteer to laminate the books. Photographic equipment and materials included 24 Kodak Instamatic X-15F cameras, 24 boxes of Kodak Verichrome pan film (VP 126-12) for the black-and-white prints, and 12 twin packs of GE Flip Flash II bulbs. The books were made of colored oak tag covers and ditto paper pages. Cost was about $150 for film, flash cubes, and developing.

Outcomes and Adaptability

Estis says that the "Focus on Me" books added "interest and excitement to our class and enabled us to get to know, understand, and admire one another. The books also became a motivational device for increasing language arts and math skills by making these areas more personal for the students." The teacher believes that cameras can enhance self-awareness and self-image at any grade level by adapting the level of difficulty of the spin-off activities in language arts, math or art.

From Reading to Riches, An Exercise in Authorship and Photography

Ann Guiffre

Conlee Elementary School
Las Cruces, New Mexico

Subject: Language Arts

Grade: 1-6 (Chapter I Reading Lab)

"I favor photographs rather than drawings in this type of project because so many children neither enjoy nor feel successful with their own illustrations. Using photographs stimulates their creativity and makes them feel good about themselves."

Purpose and Description of Project

Ann Guiffre's 24 Chapter I students wrote stories, took photographs to complement their creations, bound the stories and photos into books and—contrary to the experience of most would-be authors—actually had their work accepted as part of the permanent collection of both the school and the local public library.

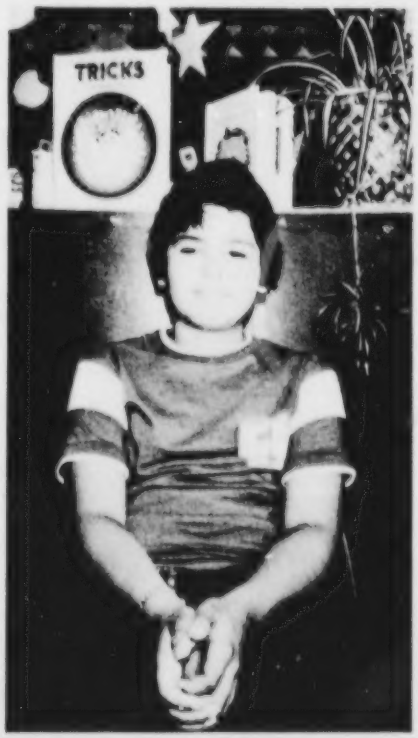
In addition to considerable pride of accomplishment, says Guiffre, the children gained in the areas of listening, following directions, sight word development, vocabulary, sentencing and paragraphing, organization in thought and writing, and creative expression. The students also learned about photography and exhibited great enthusiasm for dressing up, setting scenes, and enacting their characters before the camera. Some even tried fancy shots with overlapping images and colors for eerie effects.

Activities

Guiffre and her aide began by reading aloud to the students in the reading lab for several days prior to the beginning of the project to help them get ideas for various types of books they might want to try—such as number and alphabet books, fairy tales and fantasy, adventure stories, mysteries, and books about boys' and girls' special problems. While the younger students often followed specific patterns, the older ones tended toward mysteries and subjects involving personal friends and problems. The latter also went into considerable depth and outlined their work chapter by chapter.

The students read and re-read rough drafts to make improvements and to increase reading capability. When completed, the stories were typed, copied in triplicate, and bound with contact paper and cardboard sewed together from the center. Many of the younger children also added their own illustrations.

In the photography section of the project, the children studied books on photography, compared different types of pictures, and learned how to handle the camera. Each student



could include two photos in each of the three copies made of his or her book—a portrait shot of the author and a context shot involving models, special locations, props, and costumes.

Once the photos were added to the books, copies were presented to the school and local libraries in special ceremonies, and the students got the third copy to take home.

Materials, Resources, and Expenses

In addition to the school and local librarians, other human resources included employees of a local photo lab who helped with camera selection, gave technical advice on film, proofs, and final prints, and supplied sample photos for study; and officers of the local bank who contributed additional funding for the project.

To carry out the project for 24 students required about $200. This covered purchase of a used Olympus 35mm camera, color and black-and-white film, and film processing and making three prints of each photo. Other equipment and materials included a typewriter, a copying machine, contact paper, and cardboard.

Outcomes and Adaptability

Guiffre reports that "this project made the students feel successful, extended their knowledge in reading, writing, and photography, and made their reading comprehension more cohesive. The students also explored their school environment while taking their photos, and the overall school population became aware of the project and reacted to our children with enthusiasm and warmth."

The teacher believes that similar projects could be successfully undertaken by teachers in all grades for students of any ability level—from remedial to gifted—in such subjects as reading, literature, writing, and drama.

Photo Link

Sandi Roullier

Cirby School
Roseville, California

Subject: Language Arts

Grade: 2

"The project not only allowed me to achieve the objectives that I had established for language skills but also brought life, imagination, and initiative into subject matter that could otherwise be dull and boring for students and teacher alike."

Purpose and Description of Project

Sandi Roullier used photographs of her second-graders to motivate them to learn to write correct letters to their pen pals and improve their grammar, handwriting, capitalization, punctuation, and ability to construct complete sentences.

The photos—taken by a class aide and by the children were used to spotlight a "star of the week" on the bulletin board and to illustrate the students' letters to a second-grade class in Bloomington, Minnesota. In addition to improving language skills, Roullier thought the use of pictures would enhance the children's self-image and encourage them to talk about their activities with peers and parents.

She says that the project was successful in all aspects and generated great enthusiasm among the youngsters for both photography and writing.

Activities

Each week during the project, a different student was selected to have his or her photo displayed on the bulletin board, be interviewed by the class, and have individual interests highlighted in the photo caption. The teacher next covered letter format (date, greeting, body, closing, and signature), grammar, capitalization, punctuation, use of adjectives, and expanding sentences while also emphasizing neatness and good handwriting.

Roullier's classroom aide taught the class about holding the camera; advancing, loading, and unloading film; focusing; and using lighting. She had each student take a picture of another student. Additional photos were taken of the students with their favorite toys, enacting their favorite sport, and portraying their favorite holiday. The students then wrote their first letter to their Minnesota counterparts about the toy related photos. As they subsequently received responses, the children went on to write letters about their favorite holidays, sports, and school subjects, including the appropriate photo with each. Letters and photos they received in return were displayed on a bulletin board during an open house so that students could share them with their families.

Additional activities included a geography lesson on Minnesota and the creation of Mother's Day cards using copies of the sports photos.

Materials, Resources, and Expenses

Human resources included Roullier's classroom aide and the Minnesota teacher who shared the project with her class. Equipment and materials included a 35mm camera and a Kodak Instamatic; color film; and newsprint for letters. Cost items were film, processing and postage, which ran to between $7 and $12 for each of the class' four photo/letter experiences. (All letters were mailed together in large envelopes so that they would arrive at the same time.) The Minnesota teacher had similar expenses, which Roullier also covered out of her NEA/Kodak grant.

Outcomes and Adaptability

Roullier says that her "students' language skills have shown marked improvement, and when writing letters, they try hard to use their best handwriting and correct sentence structure." They were so motivated by the project, she adds, that they used "much of their free class time writing letters to their parents and friends." In short, she states, the project "successfully motivates the passive learner, the weak students are able to achieve success, and the shy students speak up!"

The teacher advises that this project would be valuable for the first through sixth grades and that many variations on the photo topics she used could "help students communicate their ideas and share themselves with one another."

Our School

Ruth Ann Mugerauer

School District of Amery
Amery, Wisconsin

Subject: Language Arts/Photography

Grade: 2–4 (Gifted)

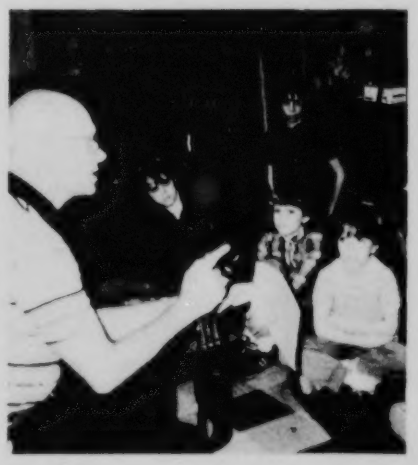
"Audio-slide shows are great motivations. Cameras have that special magic that makes any project 'click.'"

Purpose and Description of Project

A simple request to provide entertainment for the school open house turned into an intensive three-week project when 24 gifted students decided the entertainment should be a slide/tape presentation featuring the school building and staff members. The curriculum areas Mugerauer selected to stress were creative writing and art photography.

Activities

After the students decided on the form of the entertainment, they selected a title—"Our School"—and brainstormed a list of what should be included. They decided to collect information through questionnaires given to the entire staff and selected interviews. After the questionnaires were developed and completed and the interviews finished, this information was gathered by the students for inclusion in short reports on individual features.



Then they learned to operate a simple 35mm camera with the help of a professional photographer who demonstrated how the camera and its parts work and who showed them basic camera techniques. The students carried out their photography activities all around the school, critiqued the developed slides, and retook slides as necessary.

Organizing the reports and slides in logical order proved to give the students the greatest difficulty because they had had little experience in organizing and writing reports. The school's creative writing consultant gave them guidelines to follow in compiling the reports and eliminating redundant language. The students practiced reading their reports and finally taped the narration. When the visual and audio aspects were combined, students viewed "Our School" as a final evaluation—and then they were ready for the open house.

Materials, Resources, and Expenses

The entire school staff was very cooperative in filling out the questionnaires and giving interviews. The creative writing consultant and the professional photographer contributed their expertise to the project's focus on creative writing and art photography.

The materials that were required were simple. Students used their own writing supplies, and Mugerauer provided a 35mm camera and tape recorder. The school's screen and slide projector were used for the final performance. The only major expenses were for slide film and tapes which came to about $35.

Outcomes and Adaptability

Mugerauer followed a lesson plan developed from the Frank E. Williams "Model for Implementing Cognitive-Affective Behaviors in the Classroom," which provided guidelines on teacher strategies and desired pupil behaviors. This approach proved successful as the students showed considerable improvement in writing skills. In addition, students really enjoyed interviewing the teachers and other staff members because this gave them opportunities to form special relationships.

The school's lighting situation did turn out to be a drawback. Students, however, showed their awareness of how background, lighting, poses, etc., affect the composition of the slides, and the slides they took were remarkably clear and well focused under the circumstances. Eventually they learned to deal with the glare from glasses and many shiny surfaces, but some minor lighting problems remained, illustrating that the camera has limitations. Student nervousness surfaced when it was time to tape the reports, but the reactions of the audience at the open house told them that the finished product was a hit. The project was especially successful because it combined academic learning and fun, and it could certainly be adapted to any group of students in any school.

Arts and the Olympics/ Dance and Athletics

Jimmie Ray Terry

Northeast Elementary School
Broken Arrow, Oklahoma

Subject: Language Arts

Grade: 2, 4 & 5

"The camera is valuable as a tool of observation because it has a double-edged effect—first the students observe prior to taking the pictures, then refocus their observations when viewing the image."

Purpose and Description of Project

Jimmie Ray Terry worked with selected groups of second-, fourth-, and fifth-graders to help them experience, photograph, and reflect through poetry the similarities of various elements of dance and athletics.

The project was carried out in correlation with a schoolwide year-long focus on tying the school's art and physical education programs to the "Year of the Olympics." (The school is one of the state's "arts-in-education" sites.) The children also had the advantage of working with a "dancer in residence" for a week (from the State Arts Council of Oklahoma) and with a photographer and two poets from the Arts and Humanities Council of Tulsa.

A number of students actually studied and performed dances with the dance specialist, while others photographed their movements. The student-photographers also took slides of various athletic events. The resulting slides were used to help both these children and others understand the commonalities of dance and athletics and to motivate them to write creatively.

Activities

The project was divided into three phases—dance, photography, and creative writing.

Dance—Working with the dancer-in-residence, a group of second- and fifth-graders discussed in general the elements that make for excellence in both dance and athletics. They explored various movements and choreographed their own dance.

Observation/photography—Several fourth- and fifth-graders met with the photographer, learned about cameras, interviewed and photographed the dancer, and took pictures of the children involved in the dance class. They later took additional slides of track and field events. In all, they took about 200 dance slides and 75 sports slides.

Creative writing—Two fifth- and three second-grade classes worked with the visiting poets. Using the slides as inspiration, the poets dictated the first line of a couplet and then the children wrote their own second lines that expressed the same feeling.

Materials, Resources, and Expenses

Human resources were the photographer, dancer, and poets who worked closely with the children. Equipment included three 35mm cameras (loaned), film for about 275 slides, and a slide projector. (No cost data provided.)

Outcomes and Adaptability

The value of the project was in providing the children with varied means of artistic expression, according to Terry, who says that "students who might be inhibited by usual forms of communication were offered new opportunities." But while stressing that "the process, not the product" was the most important aspect of the project, she does note that the children who were directly involved in dance and/or photography experiences produced higher-quality writing than those who simply viewed the slides.

Terry says that this project tying together dance, photography, and language arts is suitable for both elementary and intermediate students.

Language, As Experienced Through Pin-Hole Photography

Brenda Tomlin
Lamar Brown

Hood Street School
Fort Jackson, South Carolina

Subject: Language Arts

Grade: 3–6

"One of the best ways to get students to express themselves orally or in writing is to get them involved in real experiences that they will want to tell about, and that's what this project demonstrated."

Purpose and Description of Project

Brenda Tomlin, a language therapist, and Lamar Brown, an art teacher, used pinhole photography as a vehicle for increasing the language skills of six students who had either language disorders or developmental delays in language.

These students—who had been mainstreamed into regular classrooms and spent much of their time feeling frustrated and unsuccessful—developed the confidence to participate in language experiences outside the project and were enormously proud of producing results that were admired by other students and family.

Activities

This project was divided into two main phases—(1) learning about and making pinhole cameras, and (2) taking pictures, developing negatives, and making prints. Similar language development activities succeeded each phase.

Phase I—Students read about and discussed photographic principles and, under the direction of the art teacher, constructed individual cameras from heavy black cardboard and thin sheet metal with a hole for the lens and black tape for the shutter. To reinforce what they had learned, the teacher also built a demonstration "can" camera to show how light rays refract and produce an inverted image, as well as a giant walk-in pinhole camera. The giant camera, constructed from two refrigerator cartons, made it possible for students to get an inside view of how pinhole photography works.

Follow-up activites included group discussion of what the students had learned; development of a list of new vocabulary words; dictation by the students of their individual stories about making cameras for an adult partner; and the writing of each sentence on a strip.

Phase II—The art teacher took students to the darkroom and demonstrated the sensitivity of photographic paper to light. After the cameras were loaded, the students learned about controlling the length of exposure time. The students then experimented alternately with taking photos outdoors and developing negatives until they attained good quality negatives. At this point the youngsters made a number of prints.

Materials, Resources, and Expenses

The two teachers were assisted by a speech paraprofessional and used the following materials: heavyduty black and grey cardboard; black photographic tape; thin sheet metal for lenses; 100 sheets of 8×10 Kodak photographic paper; the school's darkroom facilities and developing chemicals, including developer, stop bath, fixer, trays, and safe light; refrigerator boxes; and a large can, waxed paper, and black construction paper for the "can" camera. Because the school had its own darkroom and developing chemicals, the teachers' expenses were minimal—$10 for camera materials for the six students, and $36.73 for the photographic paper.

Outcomes and Adaptability

Tomlin and Brown believe that the students found the photographic activities highly motivating and challenging, and as a result they produced stories that were "interesting, informative, and correctly sequenced."

Perhaps even more important for these students, who had previously gained little success in language-related activities, was that they succeeded this time and that others recognized their success. The youngsters were eager to discuss what they were learning—not just in the project sessions but back in their regular classrooms as well. And in the project sessions, the children competed to be first to tell their stories and to include the most details while writing. According to the reports of classroom teachers, virtually every aspect of the children's performance—from writing to social confidence—improved.

In short, states the language therapist, "pinhole photography was our most interesting and rewarding language experience this year." She also suggests that this approach could be adapted for students of any age or ability level.

Photo-Journalism

Camis Haskell
Dave Piersol

Lincoln Elementary School
Loveland, Colorado

Subject: Language Arts

Grade: 3-6 (Gifted and Talented)

"Students not only mastered photographic techniques but commented on an increased awareness of their surroundings."

Purpose and Description of Project

Classroom teacher Dave Piersol and gifted-and-talented resource teacher Camis Haskell used photography to enhance their students' communication skills and awareness of detail and logical sequencing.

During the project, the students learned camera use, darkroom techniques, and the elements of photographic composition. They then put their knowledge to work by producing individual photos showing such elements as depth and vantage point, group photo essays in black and white, and individual photo essays in color. Topics for the essays ranged from recess games to a sequence on father-daughter sharing of work and play.

The teachers report that the students not only mastered photographic techniques but "also commented on an increased awareness of their surroundings."

Activities

After the students had been instructed in the use of both Instamatic and 35mm cameras, they viewed presentations by the school art teacher and a professional photographer on the elements of photographic composition. They then took their own photos illustrating these elements and evaluated the pictures in class. This was followed by a class discussion and slide show led by a newspaper photographer, who illustrated how pictures can tell a story.

The students divided into groups, wrote their photo essay proposals, and shot the required photos in black and white. After instruction in darkroom techniques, the youngsters processed their film and made prints. The resulting mounted essays were discussed by the entire class.

In their final activity, students shot individual photo essays in color, mounted the photos in their chosen sequence, and evaluated the products in class.

Materials, Resources, and Expenses

Human resources included the school art teacher, a free-lance photographer, a newspaper photographer, and the high school journalism teacher, who provided access to that school's darkroom.

Both student and school cameras were used, along with both black-and-white and color film. Costs ran to about $160, for darkroom supplies and having color prints made outside.

Outcomes and Adaptability

Haskell and Piersol report that the students learned to correctly operate their cameras, to recognize interesting and workable shots, to carry out darkroom procedures from development of negatives to finished prints, and to appreciate the communication value of photographs. In addition, the youngsters developed an awareness of the aesthetic qualities of their everyday surroundings, and the "students' level of interest and motivation were increased through the use of this hands-on learning process," say the teachers.

While this project involved gifted and talented students, the teachers say they "believe the instruction could be adapted to any ability level and would be a good motivator for reluctant learners." They also suggest that photo essays would be useful in any curricular area, including language arts, to stimulate composition, and science, to document natural or experimental changes.

¡Mira, mira!

Darlene Roker

Vermont Avenue School
Los Angeles, California

Subject: Language Arts

Grade: 4

"The most important evaluation came from the students. They repeatedly showed more interest in completing their project components than in leaving the classroom for recess!"

Purpose and Description of Project

Darlene Roker used the magic of the camera to reach out to a class of inner-city youngsters who were about 95 percent minority and 25 percent limited or non-English speaking. Her goals were "to improve cultural awareness among classmates, increase language skills and English proficiency, and heighten the self-esteem" of these children, who frequently suffer academic difficulties and social isolation.

Roker had her students photograph their families and aspects of their homelife, write about their photographs, and create "family albums" to share with the class, and ever, she was startled by the results. The youngsters did indeed learn to write grammatically correct sentences and paragraphs as well as to recognize and take quality photographs. They also gained measurably in self-confidence and positive perceptions of others.

"What I did not expect," remarks the teacher, "was their ongoing enthusiasm for all parts of the program—not just the photography." As an example, she cites the child who was a two-year-below-grade-level reader and "who rarely finished an assignment" but who held up the class one day at recess when he insisted on completing "just this one sentence."

Activities

Roker began "¡Mira, mira!" (which means "Look, look!") by teaching the students some basics of photography with her 35mm camera and one of the simple Continental 126 cameras she had purchased for the class.

Among the charts she put on display was one of compositional factors, along with illustrative photos of her own and from magazines; one showing some of her photographic goofs and asking "What's Wrong with This Picture?" and one comparing two shots of the same scenes (also personal photos) so that the children could choose the better photo in each case.

Actual camera experience began with the children pairing off to photograph each other, and these pictures were also made into a wall chart for class analysis. At this point, Roker began sending cameras home with the youngsters on a rotating overnight basis so that they could take the family pictures that would make up their albums.

During their study of syntax and grammar, the students wrote about photos provided by Roker from her files. They progressed from writing sentences describing photos of active children to constructing paragraphs drawn from their questions and answers about the photos based on the journalistic "who, what, where, when, why, and how." These exercises were done both singly and in groups.

The children laid out their photos and glued down the captions below the corresponding photos. They used picture corners and a folded piece of 12" × 18" construction paper to make the albums. When the albums were completed, each child sat before the group, showed each picture, and then selected one favorite photo to discuss at length. "By not requiring them to share too much," reports the teacher, "I lessened their fears and was able to get all 27 children to report, no little feat in itself."

Materials, Resources, and Expenses

A young freelance photographer talked to the children about the excitement of photographing celebrities and took a picture of each child for him or her to keep.

Camera equipment included the teacher's Nikon 35mm camera and seven Continental 126 cameras she bought for the children. The children's cameras cost only about $10 each; film ranged from $1.16 to $1.79 a roll; and the developing and printing of each roll ran about $3.

Outcomes and Adaptability

Roker says that by the time her students finished their albums, "each child had a working knowledge of syntax and the basic idea of paragraph construction." She also found that all the children could not only understand the photographic concepts she was trying to teach, "but also apply those concepts to other pictures and, ultimately, to the photos they took at home. At least 75 percent of the prints showed they had remembered the lessons I had taught."

Further, pre- and post-tests showed measurable growth in both self-confidence and perception of others. "Since one of my main aims was to encourage better relations between classmates, the growth in the area of perception was most welcome," Roker comments.

The teacher also believes that either her project or a modification "could be used in almost any school situation." For example, if children are too young to carry cameras home and back, the focus of the project could be changed to "friends at school." And for upper grades, the writing aspects of the program could be more sophisticated.

Look Twice

Laurie Pate

Knight Elementary School
Lilburn, Georgia

Subject: Language Arts

Grade: 4 (Gifted)

"[The project] has increased students' awareness of the use of media and has helped them to have a different perspective and better understanding of media and its effects on their daily lives."

Purpose and Description of Project

Laurie Pate stressed the importance of communication. Because of the role media play in communication, she has involved her groups in a media production project. This group of fourth graders chose to produce a slide/tape presentation on the school's nature trail which many of the gifted students had helped to develop. While the written trail guide was informative, the students felt some people were missing small, beautiful objects near the trail. The students selected as their solution a series of close-up slides with a guiding narrative that would make people more aware of the subtle aspects of nature.

Activities

The slide/tape project was a total student product. Pate provided procedures to follow, but the students were in charge of decision making, organizing, analyzing, and evaluating. A naturalist from Panola State Park walked with them along the nature trail to help them become more aware of their surroundings. Then they brainstormed ways to show their audience that the small objects, the signs of change, and the unusual things were worth looking for.

To help them develop a photographer's point of view, Pate showed the students how to use cardboard viewfinders. They walked along the nature trail "keying in" on specific objects, deciding what they wanted to communicate, and seeing what their slides might look like. After the students selected and sequenced their ideas, they drew a story board and added a limited narrative that would let the pictures communicate the ideas.

Students selected by majority rule and compromise the best slides and sequenced them to create the desired effect. After the final visual effect was evaluated, they taped and synchronized the narration and background music.

Materials, Resources, and Expenses

Students used the school's 35mm camera and Pate's zoom lens. Pate supplied ASA 400 film because she felt it was the easiest for young students to use. A tripod and release cable were used to keep the camera as steady as possible. Pate spent a total of $36 for film and processing, a carousel tray, and a cassette tape. The only major resource persons were the naturalist who led the nature walk and the music teacher who suggested appropriate background music relating to the students' ideas.

Outcomes and Adaptability

Pate did not use books on photography to show students photography techniques because she wanted to see the results of their own perceptions and judgments. She found this created "a relaxed, free atmosphere in which the students felt free to experiment" with their slides. She also found that this media project had a number of beneficial outcomes: the group's common goal fostered cooperation and persistence; the students learned to set realistic objectives, to organize, and to manage their time well; problem-solving, analyzing, and synthesizing skills were enhanced as they gathered information from several sources. As the students adopted the viewpoint of visual presenter, they became more aware of nature's subtleties as well as more able to expess their own creativity; and they created a product that would benefit the entire school.

Pate concludes that the project is suitable for entire classes as well as small groups. Other media options include videotapes and 8mm movies.

Focus on Safety

Juanita L. Edge
Joan L. Kirby

East Dale Elementary School
Fairmont, West Virginia

Subject: Language Arts

Grade: 4–5

"The 'Focus on Safety' unit accomplished what we had hoped and much more. We believe that more challenging activities in the classroom would cause less discussion in the teachers' lounge of student apathy."

Purpose and Description of Project

Juanita Edge and Joan Kirby spotlighted the importance of children following a variety of safety rules as they go to and from school as well as during the school day. The primary product of the project was a slide/tape show dramatizing safety rules. It was planned and produced by fourth- and fifth-graders.

The students developed a list of the safety rules to be covered, set up interviews with school and community resource people, staged demonstrations of safety rules being followed or violated, and took slides to promote better safety habits. They also wrote and taped an accompanying narration and documented all their activities in

prints for display on the school bulletin board.

Edge and Kirby believe that this project has impressed on their students the fact that safety rules and regulations really do have a practical application in real-life situations.

Activities

The teachers began by discussing the need for safety and asking students, with their parents' help, to compile individual lists of rules they felt were needed throughout the school day. A final group list of such rules was arranged sequentially from leaving home to returning there after school. Students then learned how to conduct interviews through role-playing and small-group practice and again broke into groups to compile the questions that would be asked of each school or community resource person.

At this point, a photography instructor from a local college explained to the children how a camera works and how pictures are developed. He photographed the group for demonstration purposes. During the following week, the students both talked with resource people and set up photos showing good and poor safety habits.

Resource people included the school physical education instructor, who emphasized safety on playground equipment; the county sheriff and three members of his staff, who spoke about the dangers of talking to strangers and of drugs and allowed the children to sit in the patrol cars and try out the sirens; and a school bus driver, who conducted his session on the bus. The students also talked to cafeteria personnel about safety in food preparation and around machinery and took a tour of the kitchen and heard from the custodian about his responsibility for maintaining safe conditions in the school.

Other activities included keeping the school up-dated on the project through photo displays on the bulletin board. When all the slides had been taken and processed, students selected the best ones, wrote a script, and taped the narration.

Materials, Resources, and Expenses

In addition to the resource people already mentioned, the school music teacher wrote words and music for a safety song that the children learned and sang at the beginning and end of the taped narration. Equipment and materials included a Minolta 35mm camera with flash for slides and a Kodak Sunburst for prints, film, a carousel projector, a tape recorder, and cassette tapes. Cost for film and processing came to about $166.

Outcomes and Adaptability

The teachers report that the students took some excellent pictures and that tests showed significant gains in knowledge of what safety rules need to be followed throughout the school day. They also developed a better attitude toward school and learning, say Edge and Kirby.

Because of their belief that school safety is a concern in every school and at every grade level, the teachers think that a project like theirs would be useful to any teacher.

Great American Families

Thomas Kelly Sisk

Kreuzberg Elementary School
U.S. Department of Defense
Dependents School
Germany Region

Subject: Language Arts

Grade: 5

"In our present-day society, we need to place as much positive emphasis upon families as possible."

Purpose and Description of Project

Thomas Sisk and his 26 fifth-graders set out to learn about the American family by comparing and contrasting the roles of pioneer family members with those of today and investigating the daily routines of the children's own families for similarities and differences. To help them in their research and to display their findings, the children wrote essays, interviewed family members, took photos of their activities, and tape recorded narration to accompany the photos.

In the course of the project, explains Sisk, the youngsters sharpened their language skills—both oral and written—learned interviewing techniques, got a basic lesson in photography, and studied layout and design. The final products of all their work were individually designed displays of captioned photos that ranged from bound albums to shadow boxes and triptychs. These were presented along with the students' taped commentaries, which in some cases included actual interview segments with family members. The displays were set up in a special week-long exhibit at the school that was open to students, teachers, families, and other members of the community. Since tape recorders were also made available, visitors could both see and hear about these "Great American Families."

Activities

Activities during this project fall into seven groups:

Social studies unit–While studying "Families and Communities," the students were involved in brainstorming, discussions, role-playing, and interacting with a guest speaker.

Tape recorder—These sessions involved a demonstration by the school media specialist, hands-on experiences with the recorder, a group recording, and role-playing.

Interviewing techniques—Students wrote and selected good interview questions, composed introductions to Q&A sequences, interviewed family members at home, and played the finished tapes in class.

Photography—In workshop sessions conducted by a community professional, students were instructed in the use of 126, 110, and disc cameras; studied distance, lighting, backgrounds, and photographic vocabulary. They then took photos of their family members and mounted them.

English grammar and creative writing—Students did outlines, rough drafts, and final essays on their families.

Art—Students learned about layout and design for small scale presentations, studied contrasting and complementary colors, and discussed display materials and backgrounds.

Career awareness—While the youngsters had previously discussed careers as one aspect of family activities, this session focused on a guest speaker (a computer analyst) and on the various careers of their families and their value to society.

Materials, Resources, and Expenses

Human resources included guest speakers, the school media specialist, a community photographer, and parents who were the subjects of photos and interviews.

Equipment included 110, 126, and disc cameras (most students provided their own; others came from the school media center); 26 rolls of film; flash attachments for cameras without built-in flash; two tape recorders and 26 cassettes; and display materials such as construction paper, tag board, paints, stencils, contact paper, glue, and scissors. Total cost of the project was $256, primarily for film, flash, cassettes, and film processing.

Outcomes and Adaptability

Sisk found that the students remained highly motivated throughout the project and that family pride was evident among all participants. Students learned about photography, improved oral communication and writing skills, and produced unique displays of their work. He adds that the investigation of the special talents and abilities of each child's family and resulting increase in the children's self-esteem led to many positive behavior changes. The active involvement of parents also helped bring school and home closer together.

The teacher thinks that the project can be valuable at almost any grade level and that it provides teachers with "a unique way to really get to know your students, their families, and their innermost feelings about family and values."

Photography in the Elementary School

Jane E. Johnston

Arthur Circle School
Shreveport, Louisiana

Subject: Language Arts

Grade: 5

"This project helped the children to see that there are other ways than oral reports and posters to present material."

Purpose and Description of Project

Jane Johnston's students learned how to operate a 35mm camera, take black-and-white pictures, and critique photographic quality as preparation for learning to develop slide presentations with scripts. It was Johnston's goal to help these students—all part of the school's Discoveries Unlimited program for high-achievers—become aware of the value of all kinds of media for communicating information, including that involved in their school assignments and projects.

The students began by taking black-and-white photos around the school and, once they felt secure in their new talents, went on to taking slides about school activities of particular interest to them. They then wrote accompanying scripts including both description and dialogue, evaluated each other's presentations, and then shared the slide shows with the whole school.

Activities

Students first made a pinhole camera to see how an image is made on film and then were taught camera use and photographic techniques by an instructor of photography from Louisiana State University and by a professional photographer. They tried out their skills by taking five photos each around the school, critiqued each other's work and were advised by the professional photographer, and applied what they had learned in taking five more pictures. They also learned how to develop film.

In preparation for their slide presentations, the students also practiced writing dialogue, wrote mini-slide presentations about pre-existing slides, and divided into groups of three or four to decide on topics. They decided to focus on activities going on at the school and made checklists of the pictures they would need for their presentations.

Once the slides had been taken and developed, the students wrote their scripts and organized their slides to correlate with the scripts. After the class evaluated each other's work, the presentations were shared with the rest of the school.

Materials, Resources, and Expenses

Human resources were the photography instructor and professional photographer who taught the children about camera use and how to evaluate the elements of good pictures. Equipment and materials included two Honeywell Pentax 35mm cameras, Tri-X Pan 800 ASA film, Ektachrome 200 slide film, a Sunpack flash unit, a slide projector, and a slide table. (No cost data provided.)

Outcomes and Adaptability

Johnston says that she "saw many wonderful things come out of this project. I saw children who were afraid to pick up a camera, afraid that their pictures weren't going to come out. Children who at first didn't know what to do, came into my office and begged to get the camera and go out around the school to take pictures." She also says that the children's scriptwriting was "much more creative than I had given them credit for" and that they completed the projects easily because of their preplanning. They learned the importance of organization in carrying out a project and also discovered new ways to express themselves.

The teacher does warn others who would like to do a similar project that it would be better done with a group of about 10 students rather than the 25 she worked with. And she also notes that spring is probably a bad time to try "something as intensive as this" because of the many other special school activities scheduled during that time.

Poetry in Photography

Geneva Ackman

Brookings Public Schools
Brookings, South Dakota

Subject: Language Arts/Creative Writing

Grade: 5 (Gifted)

"Photography really opened the children's eyes to things they had looked at but had never really 'seen' before."

Purpose and Description of Project

In this project, Geneva Ackman worked with 40 high-achieving fifth-graders from three schools to help them learn how to operate a 35mm camera and then use the resulting photographs as a stimulus for writing poetry.

With the assistance of a high school student, reports Ackman, the children not only learned to use the camera but became interested in how and why different adjustments are made, particularly those related to light settings. The teacher guided students' discussions about the photographs, with an emphasis on the emotions or feelings they evoked. At this point, Ackman introduced the children to various types of poetry, including samples of a rhyming story, haiku, formal cinquain, diamante, triolet, limerick, and clerihew.

The students chose one of the 12 photos each had taken for poetry writing purposes and arranged bulletin board displays of the others for their respective schools. Their final products—each student's chosen photo and poem mounted together—were displayed in the town's public library.

According to Ackman, the project succeeded even beyond her expectations. Every student produced high-quality photos. The photos produced lively discussion and sharing of ideas; and every student completed a poem. Ackman found that "photography really opened the children's eyes to things that they had looked at but had never really 'seen' before." She herself gained a new understanding of the students by observing their choice of photographic subjects and how they approached the process of picture-taking.

The teacher also reports that the project drew substantial interest from students who did not actively participate and was seen as so valuable by the principals of the three schools that they are using federal grant monies to buy a 35mm camera for each elementary school.

Activities

Project activities were carried out at the three schools on a rotating basis, using lunch hours over a two-month period. Students also worked on their own time. The high school student who taught the youngsters about photography was taking a class in tutoring and received credit for working with elementary students. Day-to-day activities, repeated with students from each school, included the following:

The high school student demonstrated two different 35mm cameras, explaining various elements of the cameras and their functions, different types of lighting, backgrounds, how to determine distance from the subject, and how to hold the camera steady. He then walked them through the picture-taking process.

Several days were then devoted to actual picture-taking both indoors and outdoors and under varying conditions, including sunny, cloudy, and even snowy. Each student took six indoor and six outdoor shots. Their subjects, says the teacher, ranged "from a live tarantula in one classroom to children making a snowman on the playground. And a white rat in one school must surely be the most photographed animal in Brookings."

Once the pictures were developed, each child received his or her own set and shared them with the

others, informally discussing which might be the best poetic subjects and which would go on the bulletin boards. When selections had been made, the children arranged the displays and worked together to come up with lists of words suggested by their chosen photos.

The teacher provided the students with samples of various types of poetry, which they discussed before deciding on their personal choices. From here on, the children were on their own. They completed their poems, printed them on poster board, and mounted the pictures.

The final display at the Brookings Public Library, adds Ackman, drew a very positive community response.

Materials, Resources, and Expenses

Human resources included the high school student who assisted the fifth-graders with their photography, school and public librarians, and various school personnel.

Cameras used were a Minolta and a Yashika. The only cost items were film—15 rolls of 36-exposure Kodak VR 400—and developing, which, due to the generosity of a local camera store, cost only $200. Poster boards and other materials for the displays were provided by the schools.

Outcomes and Adaptability

Ackman reports that "everyone involved in the project developed and maintained a high degree of enthusiasm." The quality of the students' photographs, she believes, shows that they became quite proficient photographers, and their responses to a follow-up questionnaire indicated that many of the students will continue to work at their new skill. Further, many of the students felt they were seeing their surroundings "in a new way" and demonstrated a sense of pride and personal satisfaction in the culminating library display. And, since this was an enrichment activity for which the children received no grade, the simple fact that they all completed the work was an indication of the fascination of tying together photography and creative writing.

While her project was carried out with gifted students, Ackman believes that it would draw interest among students of virtually any achievement level. In fact, the children's choice of photo subjects provided her with so much insight into their thoughts and motivations that she suggests that a similar activity "would be excellent for working with learning disabled or emotionally disturbed children." She also thinks that the project would lend itself to a regular classroom setting in which the teacher had more time flexibility and could delve into the history of photography, the scientific principles demonstrated in the operation of a camera, and the selection of musical backgrounds to reflect the moods of the photos.

Sounds for Survival

Karen Larka

Virginia Avenue School
Bakersfield, California

Subject: Language Arts/Art/Science

Grade: 6

"The biggest change in my children was their attitude toward each other and school. They didn't want to miss class and when chicken pox broke out, the sick children begged to come back."

Purpose and Description of Project

Karen Larka's goal was to teach her students about the plight of endangered species and about the interdependence of people, plants, animals, and the total environment. She helped them to express what they had learned and their feelings about it through a variety of artistic media, including poetry, photography, sculpture, and dance.

Using the stimulus of the recorded sounds of endangered animals, the students wrote poems that were later included in a book with photographs of their own sculptures of such creatures as the bald eagle, the alligator, and the prairie dog. These photos were also exhibited at a local college and during a special parents' night program that also included choral readings of poems, a student-choreographed ballet dramatizing the plight of endangered species, and a slide show produced by the students about the project. The ballet was also presented at a "Day in the Arts" program at a local theatre.

Larka found that the students not only improved in such cognitive areas as writing, spelling, and ecological studies but developed a sense of togetherness and of pride in their work.

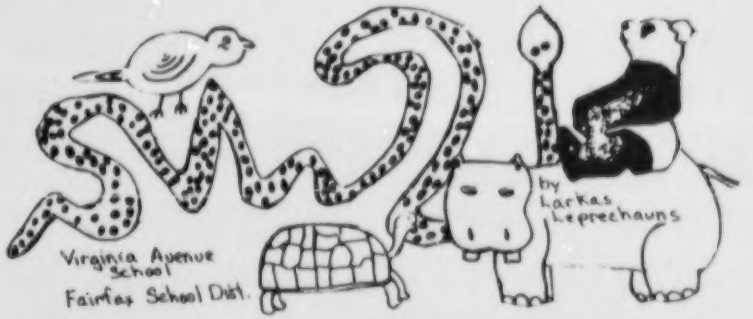
Activities

The students were involved in numerous activities over a three-month period, a sampling of which are cited below:

The class worked on its listening skills, including listening with closed eyes to recordings of music, animals, sound effects, and environmental sounds; keeping nightly listening logs; and playing listening games, such as trying to identify the nature and direction of sounds made by classmates. The students also studied how hearing occurs and how various sounds are made.

The students wrote poems inspired by the sounds of endangered animals and had lectures and labs about animals in nature. They then created clay sculptures of the animals they had studied.

The class learned about camera use, lenses, lighting, and composition and then photographed their



clay sculptures as well as creatures they saw during field trips to a zoo, the California Living Museum, and a local college's Facility for Animal Care and Training.

Materials, Resources, and Expenses

The project drew on a wealth of human resources, including the county school system's science consultant. A local poet taught about imagery and area sculptors discussed their techniques. The director of the Living Museum brought animals to class and told why they are endangered; and the director of the animal care facility donated funds for film and processing. Also involved were a musician, a professional photographer, an Audubon Society representative, and a composer who wrote the foreword for the children's poetry/photo book and sent them an album featuring animal sounds.

Equipment and materials included a 35mm SLR camara and student-owned Instamatics; Kodachrome 25 slide film and Kodak technical Pan film; chemicals for developing black-and-white prints; a 55mm lens; tripod; photo floods; photographic paper; the photo lab at the county school office; a carousel slide projector; and Indian red clay, clay tools, and kiln. Costs were $120 for film and processing and $80 for printing the book.

Outcomes and Adaptability

Larka reports that during the project, student behavior improved and attendance improved. She also found that students improved in spelling, listening, writing, and reading; learned about sculpture and photography; and came to understand people's interaction with the environment and how and why some species are endangered.

She believes that the combination of photography, sculpture, and environmental studies would be suitable for any age level and notes that both "children with learning difficulties and gifted students found the creativity stimulating."

Who Was Peter Hoy?

Nancy F. Rafal

Peter Hoy Elementary School
Lombard, Illinois

Subject: Language Arts

Grade: 6

"A project such as this demonstrates that there are some things right with American public education."

Purpose and Description of Project

Nancy Rafal, a sixth-grade reading and language arts resource teacher, led the nine students in one of her reading groups on a historical treasure hunt in which photographs played a pivotal role. They investigated the life of Peter Hoy—the man for whom their school is named—from his birth in Denmark in 1861 to his death at the age of 93, tracing his stormy Atlantic crossing to the United States in 1889, his eventual establishment as a prosperous dairy farmer, and the sale a few years after his death of a tract of his farm as the site for construction of their school.

Rafal's goals in designing this project were to develop in her students improved letter, factual, and descriptive writing abilities; organizational skills; visual literacy; appreciation of local history; and an understanding of the value of photographs as a device for both investigative research into, and documentation of, personal history. And, she reports, the project did indeed achieve these results. But it was an unplanned outcome, she found, that "became paramount through the months of the project." That outcome was the increased sense of self-worth gained by the students as a result of the responsiveness of individuals and organizations to their efforts and the recognition that their work garnered.

The students' final products were a slide/tape presentation and an illustrated book on "The Life of Peter Hoy" and on the research project itself. The students wrote the texts for both slide show and book, copied old photographs and took contemporary shots, made their own prints and selected the photos to be made into slides, and taped the slide show narration. The slide presentation and book were first unveiled at a special premiere for Hoy relatives, school personnel, and community members who had contributed to the project's success and then shown to the school's entire student body. The book and slide show are now showcased in the school's library/learning center, which is also the site of a permanent display about Hoy's life that includes a spread of captioned photographs and such artifacts as milk bottles actually used at his dairy.

THE PETER HOY RESEARCH PROJECT GROUP

Activities

During this project, Rafal's students learned to apply a wide range of research, organizational, writing, and photographic skills. Specific activities included the following:

Students composed letters to area residents named Hoy, whose names they had drawn from the telephone book. The replies produced names of other Hoy relatives, who were in turn queried, and this process continued as the students built up an extensive chain of information sources. Historical photos and artifacts were gathered, as well as a family genealogy that traced family lines to about 1920 and opened up new lines of research. Students also got in touch with the Danish Immigrant Archives in Des Moines, Iowa, which provided a copy of the log of the ship that brought Hoy to this country, and with the Danish Consulate, which provided addresses of information sources in Denmark. Altogether, about 60 letters of inquiry were sent out, 10 of them to Denmark.

Field trips were made to historical museums, historic buildings, the office of the county recorder of deeds, a cemetery, the school district offices, the local library, and to a nearby forest preserve that boasted a Mt. Hoy (although it turned out to have been named for an entirely different Hoy family).

Students learned about the photographic process by viewing a film and studying materials on film developing and print making that Rafal

adapted from various Kodak publications.

Working in teams, the sixth-graders recorded the information they had gathered on note cards, grouped the cards according to time period, and used this information base to compose the text of their Hoy biography and slide show narration, which all the students participated in taping.

The next challenge was to shoot copy negatives and slides of the old photographs that had been gathered and produce prints. The students worked in a makeshift darkroom at the school. They also processed the film and made prints of the photographs they had taken themselves during field trips and other project activities.

The youngsters then selected the slides and prints that would go into their slide show and Hoy biography, which, according to Rafal, led to "intense discussions" of the merits of individual images.

News releases and photographs documenting the project were sent out, drawing coverage in both area and Danish newspapers. The students' photographs were also featured in bulletin board displays at both their school and the school board office.

Students then brought all aspects of their work together—determining the layout and design of the book and integrating text and visuals for the slide show. Then, to share their finished products with the people who had helped them along the way, the students and Rafal invited Hoy relatives, school personnel, interested community members, historical society representatives, and parents to a formal showing of the slide/tape presentation. The Hoy biography was also spotlighted at this gathering, as well as being mailed to contributors who could not attend.

Materials, Resources, and Expenses

According to Rafal, human resources were the real heart of this project. These included members of the the Hoy family, who provided photographs, documents, and personal recollections; representatives of historical societies, who contributed other artifacts, photos, and models of turn-of-the-century buildings; county officials, who supplied information about land acquisitions; the Danish Vice Consul, who provided addresses in Denmark of archives and a tourist bureau; a representative of the Danish Immigrant Archives in Des Moines; two community members who translated information written in Danish and a parent who arranged for printing of the Hoy biography; and school personnel, who supported the project in a variety of ways.

Most of the equipment required for the project was supplied by the teacher or was already on hand. The camera used for both copy work and to document the project was Rafal's 35mm Nikon with macro and zoom lenses. Other equipment included a copystand, lights, a slide projector, a tape recorder, and darkroom fixtures. The book was typed on school district word processing facilities. Only out-of-pocket expenses were for printing the 23-page book ($2.40 per copy); postage; darkroom chemicals; photographic paper; four rolls of color slide film and processing and two rolls of black-and-white print film.

Outcomes and Adaptability

Rafal found that this project gave her students—many of whom had learning difficulties—an enormous boost in self-esteem. Not only did individuals and organizations take the students' inquiries seriously, and responded to them, but the final products of their work were recognized as being of high quality and historical importance. An example of student enthusiasm is that one participant persuaded his family to delay his transfer to another school until the project was completed.

Among other outcomes cited by Rafal are:

The youngsters gained a sense of history and of the importance of photography as an instrument for recording events. They also became interested in taking pictures to document their own lives and came to realize that such photos should carry dates and subject identifications.

The students also learned to appreciate photography as a craft and became comfortable with every aspect of the process—from being in front of the camera to producing prints in the darkroom.

The project has also enhanced ties between the schools and the community and its institutions and made a contribution of genuine historical value. In addition, the project has stimulated interest among other students in local history, international communication, and photography.

On the basis of her experience, Rafal reports that "the project can easily be modified for any grade, any class size, any level of ability." She points out students at schools named for nationally known figures could focus more on academic research, while those at schools named for local people could produce original research, and those at schools not named for people could be directed into other aspects of local history. Whatever the topic, Rafal believes that other teachers will find that the project will "take off on its own" once the students get involved in "the detective work" of research.

Using Photo Essays to Promote Organizational Writing

E. Francine Guastello

Most Holy Trinity School
Brooklyn, New York

Subject: Language Arts/Social Studies

Grade: 6-7

"Feelings of accomplishment and pleasure were derived from viewing their photos . . . . The photos served as a means of communicating ideas visually and then transferring these thoughts to writing."

Purpose and Description of Project

Francine Guastello used photo essays as a means of assisting students who speak English as a second language in writing social studies compositions. Students first photographed life in their inner-city neighborhood of Williamsburg. The sixth-grade students photographed the school principal during a typical day, community helpers, and problem spots in the community. The seventh graders photographed classmates during a typical school day, local architecture, and activities during which the school serviced the community. Students in the sixth grade used their photos to write compositions about their three topics; the seventh graders wrote on the same topics without seeing the photos. Next, the procedure was reversed for the topics photographed by the seventh graders. At each stage the compositions of the two groups were compared to see if Guastello's hypothesis was valid: that students would write more effectively using photographs as a guide.

Activities

Sixth graders were divided into three groups, each being assigned a topic to photograph. One group accompanied the principal during her daily tasks, asking questions and taking pictures as they went. They arranged the photos in sequential order for the narrative discourse pattern on a photo chart which they used to explain the principal's function to the entire class. To gather photos for the second topic, "Problems in Williamsburg," the entire class toured the neighborhood where the assigned group of students photographed very depressed sites. Students met with crossing guards and visited the local fire and police stations, the post office, and the library where they photographed individuals at work and asked questions about each community helper's responsibilities.

Seventh graders were also divided into three topic groups. The entire class walked through the neighborhood while students photographed different types of buildings for "Architecture in Williamsburg."

Materials, Resources, and Expenses

Guastello's students used 20 Kodak Instamatic cameras and 20 rolls of 126 film which were commercially developed. Pieces of oaktag and markers were used to construct the photo charts.

Employees of the City of Williamsburg served as the essential human resources. School staff members also provided the students with valuable information. Guastello asked several teachers outside the school to evaluate the quality of the students' writing.

Outcomes and Adaptability

According to Guastello, "Teacher evaluation and student self-reports revealed that the task of writing flowed more easily when aided by the photos which provided students with detailed content and organization." Because the photos helped make the students' experiences concrete rather than abstract, their essays contained details and facts organized in a coherent manner. She notes that, "Our students no longer fear writing or experience the frustration of, 'I can't think of anything to write.'"

In carrying out the project, students also learned a great deal about their community and its people, their own role in maintaining a safe and clean environment, and the function of their school and its staff. Because this was the first time many of the students had used cameras, this, too, was a learning adventure.

Guastello feels the project can and should be duplicated by any teacher interested in improving students' oral and written discourse.

Writing Between the Lens

Joyce Gralewicz

Carl Sandburg Middle School
Old Bridge, New Jersey

Subject: Language Arts/Reading

Grade: 7

"If you give students something of their own to write and reflect on, their writing will take on a sense of purposefulness and meaning."

Purpose and Description of Project

Joyce Gralewicz's main goal was to improve her students' writing skills, and she used photographs not only to motivate them to write but to help them learn to see different points of view, become better observers, and focus on details. Students took many photos themselves and also studied pictures from other sources.

Gralewicz's central message to her students was that both photographs and writing have "shape, pattern, texture, and form," so that their writing should be the "positive print" of what was found in their photographic "negatives." "Due to the fact that their series of photos was saying something," she explains, "they were obliged to tell the story correctly as they saw it."

"My students learned to take a closer look at things," says the teacher. "In addition to writing about things that we actually saw, we stressed 'writing between the lens'—inference skills, drawing conclusions and judgments." In the process, the students became accustomed to writing, rewriting, editing, proofreading, and using such reference works as dictionaries, the thesaurus, and grammar books. They wanted "to write it right," explains Gralewicz, in order to do justice to their photographs. "All of my students' attitudes became more positive and energetic," she adds, and "I watched students that barely spoke, blossom into leaders."

Activities

Gralewicz introduced the unit with a series of short activities dealing with powers of observation, and building toward fully developed paragraphs. In the course of teaching the youngsters to "*see*, not just *look*," the teacher asked them impromptu questions about what their bus driver had been wearing or what color eyes a rock star has; had them solve mysteries by studying transparencies of "the scene of the crime;" and had them pick details out of filmstrips and magazine photos.

The students also started writing details from the visuals, moving on to single sentences and full paragraphs about what they saw. From these writings, the youngsters found that different people form different impressions even when they see the same things. They went on to explore this question through discussions, role-playing, and simulations. At this point, the "camera safaris" were formed, and the teacher stressed the steps that should characterize both the students' photos and their writing—focus (decide on a subject); shoot (get it on paper); develop (say what you mean); enlarge (stress important aspects, delete the unnecessary); and picture perfect (the finished copy).

Once the prints were returned, students first settled on an arrangement and then set out to write an essay, fiction, or "faction." The final step was to incorporate their photos with their compositions in individual, mounted displays.

Materials, Resources, and Expenses

Both school and outside sources shared their own photos and photo collections with the class as the students were learning to really look at and draw inferences about photos.

Students brought in their own cameras, including Kodak Disc, Instamatic, and 110, and used a similar variety of film types. Also used was the teacher's Canon T-50, with a macro-zoom lens and several Cokin filter systems, along with 35mm black-and-white, color, and slide film of differing speeds. Cost of all film and developing was $150. Other equipment required included an opaque projector, overhead projector, and filmstrip and slide projectors. To put together the displays, the youngsters used paper, glue, scissors, buttons, hammers, screwdrivers, plastic, pens, markers, etc.

Outcomes and Adaptability

"This unit seemed to have a rejuvenating effect on all those involved," declares Gralewicz. The students improved in such areas as grammar, punctuation, capitalization, sentence structure, parts of speech, and paragraphing, she reports. But, even more important, they gained confidence in their writing ability, became sharper observers, and began trying to see other people's points of view. And, she adds, "I noticed a sharp rise in their interest in reading. They became interested in newspapers and magazines because of pictures they saw. They then wanted to know what the pictures were about."

In short, says Gralewicz, "Now, when I assign writing, there are no more moans. I cannot imagine generating so much interest, energy, enthusiasm, and learning with any other vehicle than photography."

She also believes that this type of project could lend itself to strengthening skills in such areas as science (preserving lab work); history (sequencing events); reading (acting out a story for the camera); and career education (envisioning students on the job).

A Focus on Values

Carolyn Mauer

South Fremont Junior High School
St. Anthony, Idaho

Subject: Language Arts

Grade: 7 (Gifted)

". . . a photographer is able to see and then capture the beauty that exists in his environment."

Purpose and Description of Project

Carolyn Mauer identified four objectives for her project: (1) to increase awareness of those values society holds in high esteem, (2) to enable students to write poetry that reflects these values, (3) to enable students to take photos that reflect these values, and (4) to enable students to develop and print their own photos to be used with the poems in class booklets. These support Mauer's overall goal of using language arts to help students clarify not only society's values but also their own.

Activities

First, the class of gifted and talented students discussed what "values" are and how these values influenced their daily lives. Then they brainstormed a list of values and selected the eight that they believed were the most important to our society: love, peace, friendship, education, money, the arts, freedom, and honesty. These became the subjects of the poetry and photography project. Mauer had combined these two subjects because both the poet and the photographer express the beauty they find in the world around them.

After Mauer gave a brief lesson on aperture and shutter speeds and on focusing, the students each took five photos with a 35mm camera, each photo expressing one of the selected values. Mauer found that choosing the subject matter for the photos was one of the most difficult parts of the project. While students were instructed to look around the school with a "photographer's eye" or to bring appropriate items from home to shoot, they often felt limited because photos had to be taken at school during class time. These students had been instructed in basic darkroom procedures the previous year. They needed only a brief review before working in pairs to develop and print their pictures.

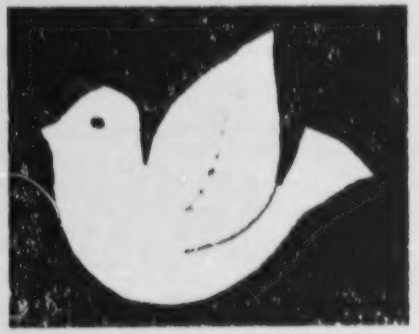
Students were able to work at their own pace over a span of several weeks so they would have time to shoot and, in some cases, reshoot photos. Others spent extra time in the darkroom as they tried to compensate for over- or underexposed pictures.

Mauer had learned from past experience that it was often difficult for young adolescents to explore the field of poetry and their own potential for writing poems. To bypass the resistance she usually encountered when the topic was introduced, Mauer structured "failproof" assignments. She defined and explained four patterned-poetry formats—Haiku, Tanka, Diamante, and Sense. Students practiced using structured formats by choosing the proper words to express what they wanted to say. Then they wrote poems to accompany each picture. To complete the project, they made a layout for each page with one photo and its related poem, grouped the pages by the value depicted, and placed them in a class book.

Students used a point system to evaluate their work on the book in terms of the quality and relevance of the photos, the quality of the poems, and the general appearance of the book. Mauer also evaluated each student's work as well as the overall appearance and organization of the book.

Materials, Resources, and Expenses

Mauer's students were able to use the school's camera and tripod. The already existing darkroom was equipped with an enlarger, timer, and other necessities. The only purchases were film, chemicals, and photographic paper. (Mauer recommends bulk loading the film so each student can have her or his own spool to take through the entire developing and printing process.)



Outcomes and Adaptability

The outcomes of the project were exciting to Mauer. Students said they found the class discussions on values and how they might differ from place to place and among age groups very valuable. They created many good poems and proudly shared their work as they gained confidence and became more serious about their poetry writing. Overall, Mauer felt that the experience was valuable in several areas. Students demonstrated greater insight in viewing how society functions—and they enjoyed the independence of the hands-on darkroom activity.

According to Mauer, her project could be used in grades 4 through 8, although younger students might need help wth developing and printing the film. She also recommended additional work on design with the students as they laid out the book because students inexperienced with design will need help.

Grammarcise

Steven Balzarini
Michael Ferraro

Holmdel Intermediate School
Holmdel, New Jersey

Subject: Language Arts

Grades: 7-8

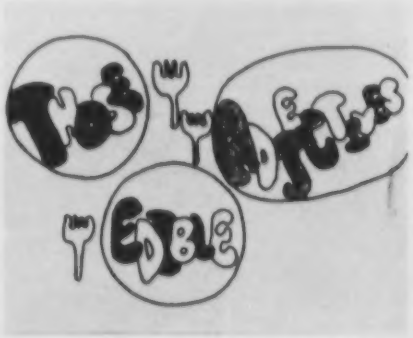
"This most prosaic and stultifying subject matter was made palatable and even pleasurable. The students exhibited a growth of grammatical knowledge between the pre- and post-tests, and many remarked that it was the first time they really understood some of the parts of speech."

Purpose and Description of Project

As part of their study of grammar, Steven Balzarini's and Michael Ferraro's students conceptualized, planned story sequences, shot slides, and recorded narration for a slide/tape presentation on the eight parts of speech. Each visual vignette was to demonstrate the grammatical element and then be included in a sentence. The project was intended to help the students master basic grammatical concepts and to create an audiovisual learning aid for others.

Activities

Ferraro first used a pretest to measure the students' knowledge of parts of speech. Then small groups of students were each assigned a part of speech to research and illustrate. The groups viewed professional storyboards, learned the basic components of visual presentation, and reviewed examples of effective visual communication; then each group created its own storyboard. Balzarini demonstrated such basic elements of photography as camera usage, composition, and lighting; a "hands-on" demonstration of cameras and equipment followed. Students reviewed their storyboards and assigned production team tasks—e.g., photographer, actor, prop gatherer, graphics designer, and costumer. After Ferraro's approval of the storyboards, Balzarini assisted the students as they shot the slides for the final presentation; the students used original costumes and backdrops, and selected "shooting locations" all around the school. Each group sequenced its developed slides and prepared an audio script; the audio tracks were recorded in the Media Center. Individual segments as well as the entire program were viewed by the groups and the class as a whole for purposes of evaluation. Ferraro also administered a posttest to measure increased knowledge.



Materials, Resources, and Expenses

Teachers, building support personnel, and the principal appeared in the grammar vignettes. Equipment included 35mm cameras, a Kodak Ektagraphic Kit to shoot illustrations in books and magazines, a slide projector/sorter to view and edit the slides, tape recorders, copy stand, lights, flash attachment, strobe light, audio mixer, and microphones. Although materials varied from group to group, most students used Kodak slide film, light bulbs, cassette tapes, lettering materials for titles and captions, TV storyboard pads, and sample professional storyboards. Balzarini and Ferraro estimate a presentation of 20 slides and a cassette tape could be prepared by three to five students for less then $25.

Outcomes and Adaptability

Balzarini and Ferraro comment that the use of photography heightened students' interest, and they demonstrated greater visual awareness and logical thinking in their storyboarding and visual composition. Even the most lethargic students were motivated by this goal-directed project and by the fact that it would be viewed by their peers.

The students also created an entertaining and educational audiovisual product that was to be made available to the school district's four library/media centers. The packaging of the slides and cassette tapes made it very easy to share with teachers of fifth through eighth graders. In fact, third- and fourth-grade teachers had requested to use the slides dealing with the parts of speech they would be introducing. This approach could be applied to other areas of language mechanics; Balzarini and Ferraro have already done this for a unit on punctuation and plan to do the same for verb completers. The teachers find the following features most transferrable to other settings: the student-centered approach to writing and storyboarding, actual field work, editing, and student evaluation.

Community Search

Bruce Hucko
Al Clarke

Montezuma Creek Elementary School
Montezuma, Utah

Subject: Language Arts/Photography

Grade: 7–9

"Looking for and thinking aloud about what would constitute a good photograph for a particular situation created new perspectives that enhanced student language use and the photographic product."

Purpose and Description of Project

Bruce Hucko and Al Clarke devised a language arts/photography project that gave their Navajo students an opportunity to examine their community from a journalistic perspective. Students photographed and interviewed parents and community members and produced photo-story posters to be displayed in the school. Hucko and Clarke were concerned with developing communication skills and with defining teaching techniques to help students transfer Navajo thoughts into English writing. Their goal was not so much to create writer/photographers as it was to develop in the students respect for their community and pride in their work.

Activities

Project activities followed this outline:

1. Preparation: Students as a class brainstormed a list of possible jobs in the community to explore. Working in teams of two (writer and photographer), students chose their interview assignments—e.g., preacher, principal, basketball coach, postmaster, etc. In each case, students conducted a first interview with their parents to make them comfortable with the process and to help them learn more clearly what work their parents were involved in. Interview appointments were scheduled and deadlines for copy and photos assigned.

2. Skill Sessions: Hucko, a professional photographer, instructed students in using a light meter and flash and in taking "people" pictures. Interviewing skills—writing letters of introduction, meeting people confidently and getting to know them, and developing a questioning strategy—were discussed. Clarke emphasized inquiry and organization techniques as students planned their assignments.

3. Getting the Information: Before each interview appointment, the class brainstormed questions. Writers prepared transcripts of the tape-recorded interviews and began their first story drafts while photographers began making photo selections.

4. Follow-Through: After Clarke corrected the first drafts of the stories, students entered them in the school's personal computer. Student teams met with Hucko to select and print the final photos. Finally, the printed articles and photos were mounted on 14" × 22" mount boards and displayed in the school hallway.

Materials, Resources, and Expenses

The most indispensable human resources were the community members who were willing to be interviewed and photographed. The students used 35mm cameras and black-and-white film. The cameras and darkroom were provided through the school's established photography program so the only cost was for film, chemicals, and photographic paper.

Outcomes and Adaptability

Foremost among the outcomes was the fact that the students saw the job through. The class response to the project was dynamic.

When comparing student prewrites with final stories, the latter were far superior in terms of clarity, continuity, and detail. "Indeed, the act of photographing focused the student's attention on the subject matter which led to more detailed writing!" Language usage improved noticeably, and their photography showed style and imagination as well as technical skill.

Scheduling difficulties were avoided because of the flexibility of the overall class schedule; "when an activity did not get finished one day, we merely tackled it the next." Having two teachers involved in the project made it feasible for pairs of students to conduct interviews and develop photos during school time under the supervision of one teacher while the other worked with the remaining students in the classroom.

Hucko and Clarke believe such a community search project is valid for all communities and can be adapted to any situation. However, they suggest it would be more replicable in an Anglo/English community because of the lack of a language barrier between teacher, student, and parents.

Tradin' Places

Kristina Kruse

Algonquin Middle School
Algonquin, Illinois

Subject: Language Arts

Grade: 8

"It was obvious that a slide show or photo-album provided that personal link between students. Class members wanted to 'see' their newly found friends."

Purpose and Description of Project

Kristina Kruse's students participated in a Pen Pal exchange augmented by a biographical slide/tape presentation. First, the students prepared introductory letters to students in Arizona and Florida as part of their classroom study of letter writing. The letters were followed by a slide/tape show on local points of interest and history for which the students shot and selected the slides, researched and wrote the script, and finally sequenced the slides and taped the narration and background music. Kruse hoped to increase student proficiency in a number of areas: letter writing, research and note-taking, creative writing, and camera skills.

Activities

During the first week, students were introduced to the parts of a letter, and they practiced writing a humorous letter. Kruse explained the Pen Pal exchange, and then students wrote rough drafts of their letters of introduction. Students proofed the drafts in groups of three and wrote their final letters which were read in class and critiqued before being mailed. During the next week the school's media director gave an hour-long workshop on using the camera. The class then decided what pictures they wanted to shoot; selected photographers, script writers, narrators, and presentors; began the actual research at the local newspaper office and library; and took walking tours to shoot the slides. When old slides of Algonquin were discovered in the media center, students voted to add a history section to the presentation.

A science teacher at the school who was also an accomplished photographer demonstrated his own slide/tape presentation on local points of interest, and a local author offered advice on writing the narration. The third week was spent in actually assembling the slide/tape show: slides were selected, sequenced, and numbered, and the narrations was written, edited, rewritten, and timed prior to the final taping session. Again, the media director helped by supervising the taping sessions and assisting with final editing decisions. The last week was taken up with trial performances for other students, parents and PTA members, and interested community residents before the final show was mailed to the Pen Pals.

Materials, Resources, and Expenses

In addition to the assistance and advice provided by the school's media director, the science teacher, and the local author, the librarian at the public library helped select materials for the historical research and invited the students to use the library for a public presentation of the show. Students used the school's 35mm camera, slide projector, overhead projector, and reel-to-reel tape recorder. Eight rolls of Kodak slide film were purchased and commercially developed for the presentation. Kruse used a Kodak Instamatic X-15F camera and two 126 film cartridges to take still photos of student activities. She estimated the cost of the project at less than $50.

Outcomes and Adaptability

Interest in the project remained high throughout, and Kruse notes that the students found they could communicate successfully and form friendships with people they had never met.

As students became involved in preparing various aspects of the project, they showed new competencies in photography, script writing, and public speaking. Each individual's progress and growth was assessed daily through their work.

Kruse has used the same project in a fifth-grade social studies class and plans to use it in a fourth-grade state history class. Thus, she feels the Pen Pal exchanges have wide appeal to students in groups of any size in a variety of settings. The project's "simplicity in implementation, materials and classroom effort in proportion to student involvement and intrinsic reward make it highly attractive and adaptable to a great many grade levels and curriculums."

Communication Through Photography

Ellen L. Milgrim
Susan T. Blevins

Stetson Middle School
West Chester, Pennsylvania

Subject: Language Arts/Interdisciplinary

Grade: 8

"The students' positive attitude toward the project caused improvement in writing skills and goal-oriented behavior. The disparity in ages did not hinder productive communication."

Purpose and Description of Project

Susan Blevins' three eighth-grade communications classes participated in this three-week project. During this time students analyzed newspaper articles and accompanying photos for clarity and quality of the writing and appropriateness of the photos. Then they worked in small groups writing individual news stories and taking individual photos, which were used to complete a group story with photo. The project was designed to develop skills in and positive attitudes toward reading, writing, and oral presentations, and to encourage students to work together in a cooperative, noncompetitive manner.

Activities

A local newspaper photographer kicked off the unit with a discussion of photographic techniques, career opportunities, and his personal experiences. He also explained the use of his own equipment as well as the cameras that the 53 students would use during the project. As a class, they critiqued the writing of newspaper articles, headlines, and captions, looking for clarity, interest, and inclusion of vital information; they judged whether or not the photos conveyed the intended message. During the individual critiques, they separated each photo from its article, and wrote their own versions of the caption and article; then they read and evaluated the actual articles and captions.

The students divided themselves into groups of three or four and selected a topic for their group's article and photo. Each group had access to a Kodak Champ Instant camera, which the members used to take individual photos related to their topic; the group selected the best individual photo for the final project. Each group member wrote an individual article to accompany the photo. The group combined the best elements from each individual story into a group story. Finally, each group presented its work to the whole class, which critiqued the results using the same criteria as they did for the professional newspaper articles.

Materials, Resources, and Expenses

The local newspaper photographers helped to introduce the photography unit while several school staff members served as subjects for the students' articles and photos. To complete the project, the students used six instant cameras, four double packs of TrimPrint film, and six flip flashes at a cost of about $200.

Outcomes and Adaptability

Milgrim and Blevins noted a number of important positive outcomes from the project: (1) Increased reading comprehension. (2) Students made suggestions for related projects. (3) Written composition, the heart of the project, also showed improvement. They used colorful language; varied sentence structure; and created exciting headlines and captions. (4) They displayed appropriate goal-oriented behavior. (5) Small-group interaction and communication were very evident despite the disparities in age (13 to 16) and ability (learning disabled to gifted) within the groups.

Milgrim and Blevins state, "The success of this project, with regard to both affective and achievement domains and with a diverse population, indicates that it could easily be replicated or adapted in other instructional settings with a variety of student populations." The teachers suggest that adaptations could be made due to limited equipment and resources, but believe that any adaptations necessary to accommodate other student populations would be minimal because of their previous success with such a diverse group. Special Education students and lower academic achievers had equal opportunities for success.

Presenting Our School: A Project for Junior High School Journalism Classes

Bertram T. Smith

Jackson Junior High School
Greensboro, North Carolina

Subject: Language Arts/Journalism

Grade: 8-9

"The use of photography . . . helped them see the relationship between attitudes (invisible, therefore not photographable) and behavior (visible and photographable)."

Purpose and Description of Project

Bertram Smith's project involved his four journalism classes (about 70 students) in the creation of a slide/tape program called "Presenting Our School." The project had three distinct objectives: (1) to have the students isolate just what it was they were trying to present about their school, (2) to have them develop an audiovisual product showing the daily functioning of the school, which the school's counselor could present when visiting feeder schools, and (3) to help students develop a familiarity with the basic operation of a camera.

Activities

Smith's students spent a great deal of time brainstorming in groups of four or five with the school's students, faculty, and administrators before making the final decision as to what aspects of school life to present. Each group was asked to keep in mind this question: "How can we make the intangible aspects of our school visible?" To unify the various themes they had chosen, the students decided on a format of following a "typical" student through a day at school and branching off from that into other aspects of school life.

Smith chose one of his students to portray the typical student, and then the classes got down to the business of taking slides. First, they heard a presentation by a photojournalist from the local newspaper who discussed some of his recent work. Then the students practiced focusing the camera before each took three preliminary black-and-white photos. Smith made contact prints and gave each student his or her three prints; these then became the subject of discussion as Smith covered the basics—focus, shutter speed, and aperture—of operating a camera.

After the students shot their first slides, Smith reviewed them in class and explained various elements of photographic composition—center of interest, texture, repetition, etc. These topics were again reinforced by Smith after the students had shot the final slides. After the slides were sequenced and the narration written and recorded, the presentation was shown to the counselor, who assured the students she would definitely make use of it as an orientation tool for new students.

Materials, Resources, and Expenses

Smith suggested that any reasonably good 35mm camera with a flash could be used. He chose to have the students work with black-and-white film because he could purchase it in 100-foot rolls and develop it himself. The black-and-white practice photos were made with Plus-X film exposed at 250 ASA and developed in ACU-1. Proofsheets were printed on Kodak Polycontrasts Paper using standard Kodak chemistry. A copying lens was used to make duplicate slides, and a zoom telephoto lens proved useful in photographing athletic events. Smith estimated that a class of 30 students could complete the project successfully with about $85.

Outcomes and Adaptability

Preparation of the slide show had a noticeable effect on the students. As the school staff and students concentrated on selecting positive aspects of the school to portray, school spirit and pride increased. Students also became more aware of both the unusual and the commonplace as they looked at their surroundings from the viewpoint of a photographer. Smith's tests on photography showed that they had learned the relationship between shutter speed and aperture, what "fast" film means, how split image focusing works, and other camera basics.

Smith recommends the project to any junior high or middle school teacher, but cautions against trying to work with such a large group. "While I am happy with the final product, I think that my attempt to make all the students feel they had a part in it resulted in few of the students feeling their part was significant."

Using Photography To Teach Conservation and Basic Skills

Debora P. Carroll

School Forest Program
of Superior Senior High School
Superior, Wisconsin

Subject: Language Arts

Grade: 10-12 (Alternative Education)

"The combination of photography and the long-term goal of producing a book helped students complete academic tasks they found distasteful. Photography is an ideal way to tie together academic goals of educators and students' experiential needs."

Purpose and Description of Project

Debora Carroll used photography as a motivational tool to enhance an ongoing alternative educational program for a group of students characterized as potential dropouts with a variety of personal and learning problems. The students, who spent half their school day in the alternative program, in which they researched and photographed wildlife and tree species, and participated in various class activities. They were involved in actual and simulated resource management practices, kept journals and finally organized and presented their knowledge and photographs in book form.

The Superior School Forest comprises 720 acres of wooded property that includes a stream, glacial features, hiking trails, and several small buildings. It offered these students an extraordinary outdoor laboratory for studying wildlife and forest management. Carroll also took the students on a field trip to another wildlife area and brought in several experts to lecture and hold demonstrations.

In addition to expanding significantly their knowledge and appreciation of the need for forest management, the project, says Carroll, brought students a wide range of other benefits. They learned about photography; showed improvement in such language skill areas as notetaking, grammar, library research, and composition; and sharpened their observational skills and ability to cooperate and organize. The students' school attendance, self-esteem, and attitude toward learning also improved.

"Students who had never participated in school-related activities *volunteered* to stay after school to work on our book," remarks Carroll. "And teenagers who never before evidenced interest in nature were suddenly checking out guidebooks to identify birds."

Activities

Although activities in the areas of photography, forest management, wildlife management, and English overlapped, Carroll estimates that the 12-week project broke down to three weeks for photographic work, five weeks on wildlife and forestry activities, two weeks on English skills, and two weeks for organizing, editing, and producing the photo-illustrated book.

Students' introduction to camera use and darkroom techniques began with making photograms, which Carroll notes is "a simple exercise that gave them immediate darkroom experience and much information in a nonthreatening manner." They also worked with 35mm and instamatic cameras.

In their work on forestry, the students learned to identify various species of trees, discussed their habitat needs, completed individual research and reports, photographed the various species, carried out mapping and compass exercises, learned the use of such forestry tools as an increment borer, and developed their own forest management plans. A forester from the state Department of Natural Resources spent several class periods with the students as well as an entire day helping them gather data in the field.

During study of wildlife management, the students went on a field trip to a wildlife area where they were able to photograph numerous species in their natural habitat. They discussed the role of zoos in conservation and heard from zoo volunteers who brought live animals to highlight their talk. A presentation was made by a wildlife technician about his job, including a display of tools, mounted specimens, and maps. The students investigated the habitat needs of various animals and birds, set up feeding stations and blinds to observe wild creatures, and developed model wild life management plans.

Students' English exercises included locating information, taking notes, outlining, developing outlines into

sentence and then paragraph form, and editing.

The students selected the photographs to be used in their book, brainstormed questions about each, and used the questions as a basis for deciding on the information to be included in photo captions and the written portions of the book. They also added drawings to show how trees would look in other seasons than that in which they had been photographed and to show the track prints of animals. The students' daily journals and reports throughout the project provided the primary basis for the written sections of the book. Each student retained a personal copy of the final 50-page book (titled "School Forest Wildlife and Forest Management"), and Carroll notes that other classes in the district have already requested copies for classroom use.

Materials, Resources, and Expenses

Among human resources were the forester, wildlife technician, and zoo volunteers who spoke to the students. Assisting were the naturalist who guided students on their field trip and two university professors who helped with the photography and editing of the book.

Equipment included a Canon TX 35mm camera with combination 80-200mm zoom, telephoto lens, six Kodak Instamatic cameras, Kodak photographic enlarger, developing trays, tongs, and film developing tanks. Materials included 100 sheets of Kodak photographic paper, Kodak Dektol developer, Kodak fixer, Microdol-X developer, negative protector sheets, 22 rolls of black-and-white 126 film and 15 rolls of 135 (Tri-X and Plus-X) film, paper, poster paper, and plastic binders for 35 copies of the book. Forestry instruments included a clinometer and altimeter, biterlix stick, diameter tape, and increment borer. Only cost items were film, $67.35; chemicals, $19.07; negative album pages, $5.78; guest speaker, $20; paper, $4.42; book binders, $17.10; copying, $3.55; and enlarger bulb, $3.72—for a total of $140.99. The cost of the field trip was handled by the school district.

Outcomes and Adaptability

Carroll found that her students' "overall enthusiasm and interest was sustained for a much longer period than I have ever seen before. Their great pride in what they had accomplished has convinced me that photography should have a permanent place in our curriculum." Part of the appeal, she believes, is that "writing, editing, or photographing for a real book doesn't seem childlike or 'schoolish.'"

In addition, the students "made great strides in photographic skills;" gained a great deal of factual information about forestry and wildlife habitat needs, interactions, identification, and management; and showed improvement in sentence structure, paragraphing, and ability to locate information. Also, says Carroll, the students gained a new awareness of their surroundings. They were "seeing through the lens of a camera details they had never seen before."

Carroll believes that photography could be used as a motivational device in many different academic areas but thinks it is especially effective when combined with writing. Not every school has its own forest, but she suggests that other teachers might want to concentrate on the urban environment, the school itself, or the living world that exists, often unnoticed, in any schoolyard.

News in Spanish

Peggy Zorolla Miller

Aberdeen High School
Aberdeen, Mississippi

Subject: Languages

Grade: 9–12

"Putting together these newspapers offered so much variety that all the students were involved in what interested them."

Purpose and Description of Project

Peggy Miller's project involved her Spanish II students in writing stories, taking photographs, and putting together two newspapers—*¿Que Tal?* in Spanish for her Spanish I and II students and *Para Ninos* in English for first through fourth graders in two of the school district's elementary schools. The newspapers were to highlight Hispanic culture as well as the individual interests of the Spanish II students. Miller's goals were to increase student motivation and to strengthen Spanish reading, writing, and vocabulary skills.

Activities

An editorial staff was chosen to discuss the content, illustrations, and format needed for the newspapers. The results of this meeting were shared with the rest of the students who volunteered to work on various sections. Students were also assigned to research and write reports, some of which were selected for the culture section. Students wrote articles, drew cartoons, and took photos of various student activities during class or after school. The elementary newspaper also included short activities involving Spanish words and phrases.

¿Que Tal? was used as supplementary material in the Spanish I classes to augment their studies of Spanish-speaking countries and their cultures. As students translated the articles, new words and subjects were discussed, vocabulary words assigned, and tests given. Students were evaluated on pronunciation and comprehension.

Spanish II students used the newspaper as a means of reinforcing reading and writing skills. New vocabulary words were discussed and tests given on the various articles.

Miller took copies of *Para Ninos* to elementary reading classes. She read the newspaper with the students, and then gave each child a Spanish name and taught them how to say selected phrases in Spanish.

Materials, Resources, and Expenses

Students used a 35mm camera to take the newspaper pictures. Books on Spanish culture, prose, and poetry were used for article research. The high school and elementary school principals and teachers were both helpful and supportive of the newspapers' preparation and subsequent use. The newspapers were typeset and printed for about $22 per page. The only other expense was $8 for two rolls of color film. Using black-and-white film would have decreased film and printing costs somewhat.

Outcomes and Adaptability

The Spanish II students were very positive toward the activity and proud of their efforts. Miller noted that the project strengthened their Spanish reading, speaking, and writing skills, particularly among her below-average students. The Spanish I students improved reading and vocabulary skills, and were enriched culturally. The elementary students learned some Spanish words as well as facts about Hispanic people and their customs—"they seemed genuinely interested in learning about these people and their language," according to Miller.

The students had fun while they were learning and their motivational level remained high as they created their own newspapers; as a result, Miller recommended the project to other language teachers.

Spanish Writing Proficiency: Visual Enhancement of Letter-Writing Assignments

Barbara Snyder
Jane DeBoer

Normandy High School
Parma, Ohio

Worthington High School
Worthington, Ohio

Subject: Languages

Grade: 9-12

"At a cost of less than a dollar per student, typical snapshots taken by typical students can enhance foreign language writing assignments, turning them into a real communicative experience and dramatically increasing proficiency."

Purpose and Description of Project

Barbara Snyder and Jane DeBoer, Spanish teachers at two high schools 130 miles apart, involved their nine Spanish II classes (about 220 students) in a monthly pen pal program. The students exchanged letters written in Spanish along with snapshots of students and school activities. The two teachers selected letter-writing activities because these allowed students to draw on their own personal experiences and gave additional meaning as the letters were sent and answers received. The exchange of snapshots, which began with the second batch of letters, was intended to enhance and give focus to the writing activities. The overall goal of this project was to develop the students' writing proficiency in Spanish through "real" experiences rather than classroom exercises.

Activities

The focal activity was, of course, the letter writing. Pen pals were assigned at random and then the pairs exchanged eight letters at the rate of one a month. These letters were sent as written with copies kept for grading purposes. The entire process of receiving and reading pen pals' letters and writing, rewriting, and sending answering letters took about a month.

The picture-taking activities were carried out over a two-week period as the students took photos of each other. Each student took at least one photo, and the content of the next letters reflected the content of the snapshots and the picture-taking activities.

Another major activity in each school was a Spanish mini-unit on photography. Students learned vocabulary and idiomatic expressions for photography and photographic activities. The teachers also presented "cultural capsules dealing with different cultural values in the American and Hispanic perception and use of photography."

The final activity was an exchange of visits by the two schools' Spanish II students.

Materials, Resources, and Expenses

Administrators and teachers at both schools provided support and cooperation. A Worthington photography teacher and a Normandy art teacher provided Snyder and DeBoer and their students with picture-taking tips, and many others helped.

Normandy students borrowed five Kodak X-15 Instamatics. One Kodak X-35 was also used. The students shot six rolls of 24-exposure Kodacolor II film. Worthington students primarly used a student-donated Canon AE-1 although several students volunteered cameras and film. These students used four rolls of 36-exposure Kodak 35mm film. The total cost for film and developing for the 220 students came to $215.

Outcomes and Adaptability

The students' lack of Spanish writing proficiency limited communication in the early letters. But the letter/snapshot project did increase proficiency in the long run, according to Sryder and DeBoer, who compared length and content of early and later letters. Writing tests given to the participating students as well as to similar nonparticipating students showed improved communicative and linguistic skills among the former group. Spanish I students were already asking when they could have pen pals.

Snyder and DeBoer suggest it would be easy to replicate this project because most of the language activities used are adapted from normal foreign-language activities. The substitution of photos and letters for textbook-related visuals and content requires no major curricular changes; yet it adds a sense of reality to the students' studies that proved to be very motivating.

174A

174B

Photo-Math

Martha Jean Barrett

Groveport, Middle School
Groveport, Ohio

Subject: Mathematics

Grade: 7

"This is by far the best project I have done in the classroom. I plan to make it a part of my yearly curriculum."

Purpose and Description of Project

Martha Jean Barrett is firmly convinced that even students who are bored or frustrated (or both) with mathematics can be motivated if it is demonstrated to them that math is not just an abstraction but a practical tool for solving "real-life consumer problems." To do this, she guided 30 advanced seventh-grade students in the creation and construction of math games involving photographs they took at various community sites and then used these games to teach math skills to two classes of students with learning problems.

Working in teams, the advanced students covered seven math categories—whole numbers, decimals, fractions, measurement, geometry, graphs, and percents. Each team selected a theme and pattern for its game, began construction, and, after instruction in photography, went out into the community to find photograhic subjects that would lend themselves to consumer math problems. They then wrote and solved math problems related to the photos. When the games were completed, the advanced students demonstrated how the games were played for the developmental students, who had already studied the concepts in class. The developmental students became so enthusiastic as a result of the games that they went on to write and solve their own math problems on the basis of newspaper photos and items.

Barrett found that while the Photo-Math games were "designed to be used by slow learners, they were also found exciting by all of my other students." In fact, since most of the games require problems of varying difficulty to be solved before players can advance on the game board, she estimates that they would be useful from about fourth grade up. Students get caught up in the games, and the use of photographs makes the situations dealt with—such as figuring the tip on a meal check—more realistic than those usually described in textbook word problems. The students also found, notes the teacher, that math could be fun rather than tedious or frightening.

Activities

The advanced students' portion of the project took approximately seven weeks and included the following activities:

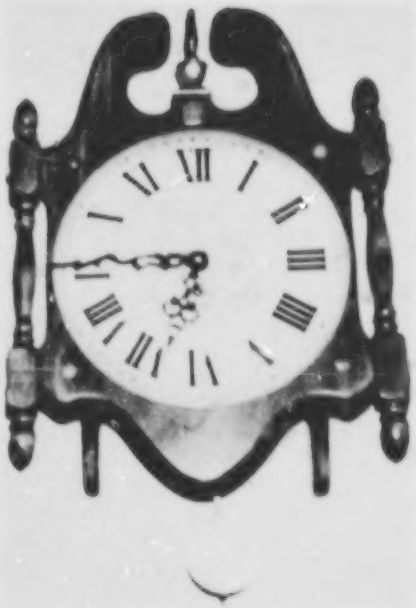
Students were given a pre-survey on their attitudes toward past math programs, their consumer math knowledge, and their overall math ability. They discussed the Photo-Math project in general and were given photographic tips by the school principal, who is also an amateur photographer.

The students divided into seven groups and each group took on one of the seven math categories to be demonstrated (whole numbers, decimals, fractions, measurement, geometry, graphs, and percents). Each team settled on a basic theme and playing pattern for its game and began construction of the game board, playing pieces, and box. The completed games would include a decorated container, game board, playing pieces, rules, photos, math problems, and an answer key.

Teams continued game construction and decided who would go to which location to take the pictures needed. Each student's goal was to produce 12 usable photos and, over the next two weeks, they fanned out to focus on restaurant menus, grocery items, store signs, billboards, buildings, animals, roadside scenery, and other subjects. The photography was done on their own time.

After the film had been professionally developed and prints returned, the students wrote assessments of what they had done right and wrong in taking the photos.

At this point, the students began writing and solving math problems about their photos. When this was done, the teacher made a final check



to see that the games were complete. Each team presented its game.

After helping the developmental students learn how to play the games, the advanced students also made formal presentations about their games to the local school board and to the parent-teacher organization.

The developmental students' portion of the project occurred over 12 class periods. Their activities included the following:

These students were also given a pre-survey on their attitudes about math and their general knowledge of consumer math and in addition were pre-tested on percents.

The teacher then taught a unit on changing a percent to a decimal and back to a percent; changing a percent to a fraction; solving problems when the percent was known; and solving problems when the percent was not known.

Five days into this unit, students began spending the first part of class reviewing percents and playing the advanced students' games for the remainder of the period. Several advanced students visited the class to explain the games.

Students were given a post-test on percents and a post-survey on their opinions about the games.

Students found examples of percents in newspapers, discussed them, cut them out, and wrote their own math problems about them. They also looked for photos in newspapers and made up problems and found answers, just as the advanced students had done.

Materials, Resources, and Expenses

Human resources for this project included the school principal; two professional photographers; the director of curriculum services for the county department of education; other school personnel; and parents, who helped transport students to photo sites and donated art supplies.

Each advanced student used a camera from home, and the total cost of film and developing was $175. Materials required for game construction included file cards, envelopes, glue, staples, construction paper, markers, poster board, game pieces, dice, spinners, portfolios and boxes, and a laminating machine.

Outcomes and Adaptability

Barrett found from pre- and post-surveys that the advanced students had enjoyed the project, improved basic math and consumer skills, learned how to operate a camera, and would recommend the project to other classes. She also observed that they were more aware of the importance and use of math in everyday life and talked enthusiastically about the examples of math concepts that they found outside class.

Further, Barrett says, they developed "tremendous organizational skills" and ability to work cooperatively during the process of developing games, taking photos, writing problems, and putting all the required elements together. Communication skills also came into play as a result of the oral presentations students made about their games and the thank-you letters they wrote to resource people. And, finally, they were proud of the help they were able to give the developmental students and had more understanding of these students' difficulties.

Evaluation of the developmental students initially showed that they could not work with percentages at all and that they were bored and frustrated with math in general. The game project "sparked their interest from the very first day," says Barrett, and they worked hard to learn the skills necessary to play the games. By the end of the project, these students showed a nearly 70 percent improvement in percent skills. Attendance also increased significantly on game days, states Barrett, and some students even asked if they could make their own games for extra credit. The students became more aware that such basic math skills are necessary for everyday life and developed a more postive attitude.

Barrett points out that Photo-Math games can be created and used by most ability groups, since her advanced students enjoyed playing the games and the developmental students became interested in making them—even though the project was designed the other way around. In addition, other subject areas could use the photo games with equal success. She suggests that social studies teachers could have students take or copy photos of famous people, buildings, or events and develop accompanying questions, while science students could photograph chemical reactions, plants, or insects.

Geometry Everywhere

Betty B. Allen

Hughes High School
Hughes, Arkansas

Subject: Mathematics/Geometry

Grade: 10

"With this activity comes a certain sharing of ideas that is not usually found in math problem-solving settings."

Purpose and Description of Project

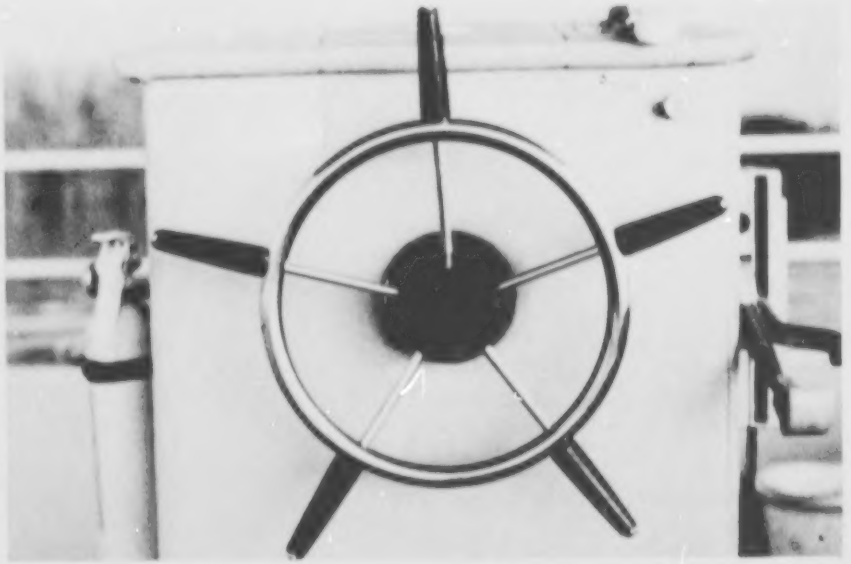
The intent of Betty Allen's enrichment activity was to make students more aware of geometric shapes and lines in objects around them. Another aim was to make geometry less of a sedentary activity; students moved out of the classroom and into the community, to take photographs of geometric forms for inclusion in class scrapbooks.

Activities

Students were divided into five groups—four to photograph geometric shapes and concepts at home, on the farm, in town, and at the lake, and one to label the resulting photographs and assemble them in four scrapbooks. After Allen's initial introduction, the groups met and planned their after-school visits to the assigned sites; then they visited the sites and, when they observed geometric forms, photographed them from more than one angle. Each group shot 24 to 36 photos which were commercially developed. When the photos were finished, the groups met during class to identify, without teacher assistance, the shapes in each picture. The scrapbook committee assembled the materials, labeled the photos, and laid out attractive pages highlighting the shapes. Students were evaluated on the quality of their participation.

Materials, Resources, and Expenses

The students' primary resources were their eyes and imaginations. They used four 35mm cameras, six rolls of film, four loose-leaf scrapbooks with adhesive-backed pages and clear plastic overlays, two packages of extra pages, and six packages of decorative stickers. The photos were commercially developed and the total cost came to just over $100.



Outcomes and Adaptability

"The creative, inquisitive nature of the average and below average student came out to an unsuspected degree," notes Allen. They relished looking at their finished photos to see how well they had captured what they thought they had seen. Also interesting was the degree of carryover to visual analysis in problem solving. Allen found that the students were interested from beginning to end and that they planned well and carried out their plans promptly. As they talked about what they might find and, later, what they did find, the photos seemed to humanize geometry. As an added benefit, the resulting scrapbooks became a useful resource to use with future classes.

Allen suggests that this math activity could be adapted to any locality or class size. In addition to the topics here, geometry in transportation could be added or substituted. Because the three- to five-week project would take little class time, it could easily be worked into the regular curriculum at certain times of the year. Weather would be a definite factor if most of the pictures were to be taken outside as was the case with this project.

The Nature of Mathematics

Ouida B. Kinzey

Birmingham-Southern College
Birmingham, Alabama

Subject: Mathematics

Grade: Higher Education

"I have tried everything but the fan and feathers to generate interest in and relieve anxiety about mathematics. One of my most successful approaches has been with photography."

Purpose and Description of Project

Ouida Kinzey's goal in this project and throughout her career in teaching has been to relieve the anxiety many non-math majors experience about what they often see as "an isolated, fearful, mean topic." By encouraging these students to become aware of how mathematical concepts are an integral aspect of everything around them—from the world of nature to the architectural design of historic homes--she helps young people "realize that mathematics is an exciting, viable part of their everyday lives." Rather than focusing on mathematics as an abstraction—or indeed on math *as* math—Kinzey helps students become familiar and comfortable with math concepts by helping them to see how these concepts relate to their own fields of study, whether music, art, English, or history.

The final product of the project is a 30-minute, 35mm slide/tape photographic essay about "The Nature of Mathematics," which was developed by Kinzey and the 16 students taking her "interim" course between semesters. Each of the 16 students did individual projects using photographs to highlight the mathematical aspects of papers on their chosen topic, and material for the overall project was then drawn from this work.

One student, for example, did a study of attitudes toward high school math by juniors and seniors in the area, while another, who started out studying card games to understand probabilities, became so interested in genetics that he made charts on all his family members to compare characteristics. Once the individual projects were completed, teacher and students started putting together the slides to be used in the slide show and writing the script.

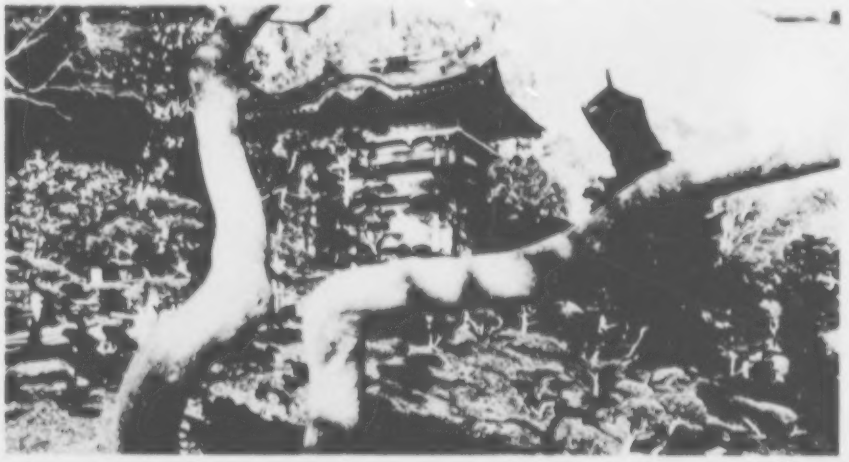
The resulting slide/tape show, comprising 140 slides synchronized to a taped narration, is, according to Kinzey, really a study in awareness. "It is designed with a humanistic and mathematical approach to aid the student in seeing the world as a combination of historical sites, spatial environment, and the interaction of humans and animals," she explains. And, she adds, while it was developed primarily for pre-college and college algebra students, she has found that the program is really suitable for fourth grade through adult viewers.

The slide show focuses on five basic mathematical concepts: (1) the distance around a point, demonstrated through such vehicles as the antics of animals and insects, ripple patterns in a lake, flowers, and the configurations of both deep and surface mining sites; (2) the relationship of lines, shown in the branching of trees, flowers, and plants, human arteries, mountains, roads, covered bridges, old homes, old mills, and churches; (3) the meander; (4) the spiral, found in roads, streams, and plants; and (5) packing and cracking, as exemplified by dried mud, giraffes, turtles, and oil paint.

The students' investigations of the math concepts demonstrated in familiar surroundings—which they had "seen" before but never really "noticed"—produced a wide range of positive outcomes, according to Kinzey. Among these were motivation, an increase in sensitivity, development of a more positive self-image, an appreciation of cultural heritage and the integration of the old and the new, and a better understanding of the field of mathematics. In the process, the students overcame the tension and apprehension they had felt about confronting math.

Activities

The project opened with previous slide shows developed by Kinzey, who is a veteran photographer and has



put together several acclaimed productions, including "Patterns—A Mathematician's View" and "How Do You See Your World?" This beginning stimulated free-brainstorming sessions and agreement on course goals. Subsequently, Kinzey took the students to her home for a get-acquainted session and to view her collections of non-math items—from rocks to Indian artifacts to Alabama memorabilia. From this exploration came a number of the topics for students' individual projects, including several old homes and a Civil War furnace. Students also took part in discussions about prominent individuals in the field of mathematics, which also led to discoveries. For example, it transpired that one student had as a child met Werner Von Braun. This student then made several trips to Kinzey's house to rummage through her collection of material on the space program and chose "Rockets and Winged Flight" as his topic.

The class also worked its way through a vast bibliography ranging from the writings of science and science fiction author Isaac Asimov to *Uses of Infinity* by Leo Zippin.

One of the most successful activities, according to the teacher, was a discussion of the "language of mathematics," which Kinzey says gave the students an appreciation of the need for precise language. An understanding of mathematical terms—such as real, imaginary, rational, and irrational—was a springboard to understanding of the underlying concepts.

Kinzey and her students also did extensive field work as part of their "awareness training," and this was where most of their photographs were taken. Among these sites were: four covered bridges, Mountain Top State Park, the oldest house in the state, an old barn with a display of primitive tools, a waterfall, and a farm.

Once the field work was completed, each student made an oral presentation (based on his or her written report and photographs) on his or her chosen topic, and the work on the slide/tape show began.

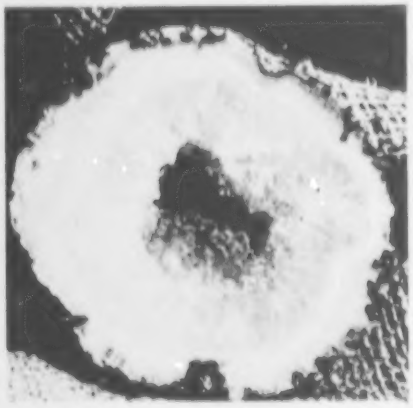
Materials, Resources, and Expenses

In addition to other faculty members and members of the community, three individuals were instrumental in ensuring that the slide show was "mathematically correct, historically accurate, and professionally acceptable," according to Kinzey. These were the math and physical science editor of the W. H. Freeman and Co. (which produces "Scientific American," among other publications); the director of the Alabama Historical Commission; and an audiovisual specialist from Westbrook Electronics.

Students provided their own cameras, but the veteran photographer and teacher also had available extensive equipment. This included Minolta TR 102 and XG 7 cameras; 28mm wide angle, 55mm macro, and 50mm lenses; 75-205, 28-85, and 35-105 zoom lenses; a Kodak Ektagraphic projector; a Wollensak 2570 recorder; a Sharp Sync/Tape recorder (model Rd-670AV); and a light box slide previewer. Film used was Kodak Ektachrome 35mm 200 and Kodachrome 64 Krl35-36. Also required were cassette tapes, slide carousels, and professional film processing and slide duplication. While Kinzey says it is virtually impossible to estimate the cost of the 140 slides actually used in the final product she reports that a carousel for 140 slides is less than $10, a cassette runs about $1.50 and duplication of 140 slides runs about $70.

Outcomes and Adaptability

Kinzey found that this project did indeed "encourage student participation and interest in identifying and recording the wonders of their surroundings, and the application of those observations to the field of mathematics." The reaction of students to the course and the slide show has been energetic and lasting, she says, remarking that "the course is over, the grades are in, but they forgot to stop!" Two students have started their own tour of the 14 remaining covered bridges in the state, for example, and the musician in the class now has the college physics department involved in photographing the patterns created on the ceiling when sunlight bounces off his drum.



In short, declares the teacher (who is close to a more-than-40-year career), "They're making it hard for me to retire. This project will encourage the students to carry on my journey through the 'World of Mathematics.' I can think of no greater legacy." The project has also spurred extensive community interest—and invitations to present the slide/tape show—coverage in the local paper, and a one-person show of the professor's still photography at the college library.

Since an interdisciplinary approach is the essence of this project, with students being urged to relate math concepts to virtually any other field, Kinzey believes that "the possibilities for adaptation are limitless." The slide show itself, she has found during her community showings, draws positive responses from all ages.

Music Composition and Photography

Harold C. La Mott

Woodman Park School
Dover, New Hampshire

Subject: Music

Grade: 6

"Students who had difficulty with written language developed alternative forms of communication through music, art, photography, and poetry."

Purpose and Description of Project

Harold La Mott aimed at developing a synergistic project that stressed the integration of music composition, still photography, poetry, and art as an alternative means of communication. His goal was to bring this about by creating a music/slide show based on his students' original composition.

Activities

Students listened to several pieces of music that had been written to evoke images and then reported to the class on the uses of videos with contemporary music. Students were asked to create a set of lyrics for an original song that could then be illustrated with pictures. They brainstormed possible subjects, ideas, and feelings, and, in their language arts classes, the participating classes selected a topic and wrote a poem for the lyrics.

The next step was to create the music—by calling out random numbers that corresponded to notes on the piano, or by the students' actually creating melodies at the piano or synthesizer. Students made decisions as to the mood—i.e., major or minor. La Mott used the synthesizer to help students decide on a rhythm. The melody was transcribed by the students on a staff, and then, in preparation for illustrating the lyrics with photography, they designed record jackets for their song. After experimenting with various musical instruments, the students decided on their song's arrangement. The students discussed how they could share their creative experiences and decided on a slide/tape presentation.

Junior high school students in the Title I-sponsored camera club agreed to take the slides, based on the possible scenes suggested by the sixth graders. Students from the elementary school band recorded the songs, and the camera club helped in synchronizing the lyrics and the slides under the supervision of their advisor. The finished product was presented at a public performance. The slide/tape show was used as a measure of how effectively the students communicated their ideas.

Materials, Resources, and Expenses

The language arts teacher assisted La Mott's students in writing the lyrics, and the eighth-grade camera enthusiasts, under the supervision of their club advisor, transposed the lyrics into visual form, photographed the scenes, developed the slides, and synchronized the slide/tape show. Workshops funded by the parent/teacher association were designed to give the sixth graders an appreciation of musical composition and lyric writing, and to give the eighth graders an understanding of photography as an art and a unique means of communication. Since the project drew on the resources and equipment of the Title I photography program, a budget under $200 covered the consumable supplies.

Outcomes and Adaptability

Pre- and post-tests showed an increase of student knowledge of photography terms and of the uses of photos and musical concepts in conveying ideas. Students who had difficulty with written forms were able to use music, poetry, and photos as alternative means of communication. Motivation remained high as students derived pleasure from creating something of their own.

La Mott suggests that the project could be initiated in music, art, or language arts classes. He concluded that the project was easily adaptable to multi-grade levels and abilities and to individual, small group, and large group settings.

Integration of Photography with Other Learning Experiences

Gerry Bader

Hackberry School
Hackberry, Louisiana
Grand Lake School
Lake Charles, Louisiana

Subject: Photography/ Multidisciplinary

Grade: K-7 (Gifted and Talented)

"Every student I teach has requested photography to be one of the major areas of study to be undertaken next year. I don't think they'll ever tire of learning with photography."

Purpose and Description of Project

Gerry Bader used photography to integrate a variety of learning experiences for her 32 academically gifted and artistically talented students. While they learned about family history, geography, science, the environment, and creative writing during the project, Bader notes that her "main thrust" was to develop an awareness of how photography can be used to "communicate ideas and emotions." She was interested in promoting "individual vision, creative thinking, and maximum experimentation" by her students.

During the project, the students studied several books of professional photographic collections as well as family photos, learned about the operation of a 35mm camera and how to process film and make prints, took their own photographs on field trips, and wrote about their photographs. Their work was exhibited at both schools from which the group was drawn.

Activities

Students began by discussing photography in general and watching a demonstration on how to use a 35mm camera. They then studied their own families' old photos to learn more about their backgrounds and shared many of these pictures in class. Bader took this as "a natural opportunity to use the geographic locations in many of the photos to teach the students to use maps, atlases, and globes" and to have them write about what they had learned from the pictures.

Bader introduced several books of photographs to spur discussion about the emotions photos can generate, while also focusing on the geographic and environmental elements of the pictures. She then took students on "an observation and photographic expedition," during which they pointed out interesting lines, shapes, and textures, looked at subjects from different angles and distances, and took pictures of what they saw.

The students became aware of the use of photographs for scientific documentation by viewing a slide presentation on an archaeological dig and studying a research report from a nearby mosquito research center that made use of microscopic photography.

To learn about processing film and making prints, the students visited a local camera center. They also visited an art store to learn about framing, but their most exciting field trip was a nature walk and cook out at a campfire camp, where they took photos of nature scenes. The youngsters then put their knowledge to work by processing the negatives of these photos and making prints in a darkroom at one of the participating schools.

The final activity was for each student to write a story or poem about at least one of the photos he or she had taken during the project.

Materials, Resources, and Expenses

Human resources included camera and art store personnel and parents who helped with field trip transportation.

Materials and equipment included darkroom equipment, Kodak developing chemicals and photographic paper, Tri-X Pan and Plus-X film, Kodacrome slide film, and a 35mm camera. Some students used family cameras. Because the darkroom and supplies and the 35mm camera were already available, Bader estimates that project costs were less than $150.

Outcomes and Adaptability

While Bader was pleased with the range of specific knowledge gained by her students in such areas as history, geography, and environmental awareness, she feels that the most important aspect of the project was "the opportunity for gaining knowledge through a variety of interesting avenues, using photography to pull it all together into one unified whole."

Although Bader believes that her use of photography to spur interdisciplinary learning could be applied by most teachers, she thinks it is especially helpful in unifying activities to suit the varied age and interest levels of a gifted and talented group.

Freshman Orientation

Donna Wilson

Contoocook Valley
Regional High School
Peterborough, New Hampshire

Subject: Photography

Grade: 9-12

"Supporting current research on different cognitive styles of learning, the students benefited by 'seeing' the information, as well as hearing and reading about it."

Purpose and Description of Project

The purpose of Donna Wilson's project was to prepare a slide/sound presentation designed to introduce eighth-grade students to the academic courses and extracurricular activities at the regional high school. The project, entitled "Freshman Orientation," was the creation of student volunteers; their only common trait was an interest in photography and their skill levels ranged from beginning to advanced photographers. The students met after school to complete the presentation with Wilson, a guidance counselor serving as faculty advisor for the group.

Activities

Students decided among themselves who would photograph which classes and activities; each was made responsible for a specific number of photos to complete and given a definite deadline. This made planning essential because they had to share one camera borrowed from the Media Center. Experienced photographers shared their knowledge with novices as they photographed ninth-grade classes, sports events, club meetings, pep rallies, and other activites. As a group they decided which slides to use and in what order to present them. They consulted teachers and department heads to gather specific information on courses, recommendations for college and vocational bound students, and required and elective courses. The students added their own suggestions on "pitfalls" to avoid. One student was chosen to write appropriate narration for each slide, and another to record it. Wilson and her students presented "Freshman Orientation" to eighth-grade students in the nine towns served by the high school prior to their choosing their ninth-grade courses; a question-and-answer session followed each presentation.

Materials, Resources, and Expenses

Wilson was the only nonstudent participant. In addition to serving as the group's advisor, she supplied the Kodak Ektachrome film for the students, had the slides developed, and accompanied the students on their presentations to assist them in answering questions. The 35mm camera and slide/sound projector were supplied by the high school.

Outcomes and Adaptability

Wilson finds that "The high school students who worked on the project learned not only the expected photography skills, particularly in the areas of lighting and composition, but many interpersonal skills as well." The latter skills were evident as they shared photography knowledge, brainstormed ideas, provided and accepted constructive criticism, and reached consensus decisions. Wilson says all participants showed self-motivation, task commitment, and the ability to plan and manage their time.

The slide/sound presentation clearly achieved its objective of orienting the eighth graders in a new and different way. They listened to the presentations without becoming restless, and they delighted in recognizing former classmates. It was also evident that they had retained much of the course information because they had much less difficulty than previous eighth graders when it came time to make their course selections. Faculties were also pleased that all junior high schools received the same orientation.

"Minimal expenses, equipment, and adult involvement make this project ideal for replication in any school environment," according to Wilson. A slide projector and tape recorder could be substituted for the slide/sound projector, or students could provide "live" narration. Though this project was designed for orientation, a similar presentation could be shown to parents, transfer students, community groups, etc. The project could be prepared by art classes, photography clubs, student councils, or others. It also could be adapted for elementary students entering junior high school.

Flash in Photography

Marvin Hamai

Mililani High School
Mililani, Hawaii

Subject: Photography

Grade: 9–12

"The use of the open flash technique proved to be especially difficult. . . . [But] we realized that this type of photography created illusions that the students found exciting."

Purpose and Description of Project

This project involved advanced photography students in the creation of unique photographic images with the electronic flash unit. The students created, developed, and mounted portrait, still life, and special effects slides that were to be combined in a slide/tape program reflecting their creative efforts.

Activities

Marvin Hamai invited two professional photographers to make presentations to his students: the first showed the class several of his slide/tape productions, and the second showed his slide program on how to use the electronic flash and explained how he used the electronic flash in his own work. Both photographers suggested different ways of using the electronic flash (e.g., to bounce light off walls or ceilings to produce a softer effect). They answered students' questions at the end of each presentation. Hamai also showed his students Kodak's audiovisual slide presentation "Using Flash Effectively." With Hamai's guidance they learned to use manual and automatic flash units, adjust the aperture and synchronize flash with shutter, bounce off of surfaces, create multiple flash exposures, perform open flash experiments, use the electronic flash with daylight, and stop action.

The students then used what they had learned as they took portraits, still lifes, and special effects shots. They took their slides during class and after school, and often served as models for each other. Small groups of three or four students also experimented with night-time photography. Hamai's students were required to develop and mount their own slides; they did this in pairs using E-6 chemicals. The final step was an in-class group evaluation of all the students' slides. A slide/tape presentation was not completed because it proved to be too ambitious an undertaking for the time available.

Materials, Resources, and Expenses

The slide presentations by the professional photographers and Kodak provided an "outstanding introduction," according to Hamai. He also provided written references on photography in general and the electronic flash in particular.

Students were required to provide their own cameras, and most owned either a manual or an automatic/dedicated flash unit. They made use of the school's existing darkroom facilities to develop their slides. Additional needed equipment included tripod, copystand, slave trigger, light stands, diffusion screen, umbrella, bounce cards, and a slide projector. The major expenses were tungsten and daylight slide film ($50), E-6 chemicals ($35), and slide mounts ($5).

Outcomes and Adaptability

Hamai plans to continue this activity as part of his regular curriculum in advanced photography despite the fact that given the time necessary to explain and use the electronic flash, the slide/tape program was not feasible. After viewing the professional slide programs, the students needed little motivation; they were all full of ideas on how to proceed and what they wanted to try. They showed a great deal of creativity in their experiments using the electronic flash, although not all the slides turned out as expected due to exposure problems. However, their knowledge of light sources and how to intensify or soften light to change the mood of a photo did seem to have improved. Hamai finds the project an overall success on two levels: "a unit like this can stimulate the students' interest in creating different images as well as reinforce some of the basics such as exposure, lighting, stopping action, and processing."

Hamai suggests that the project could, with a little imagination, be adapted to any photography class. To ensure as much photographic success as possible, he highly recommends the use of a flash meter and lower speed films.

Beginning Photography for Student Publications

Billie Lou Rickard

Sharon High School
Sharon, Kansas

Subject: Photography/English

Grade: 10-12

"Since the school does not have a darkroom, my equipment was set up in a small closet, with no water and only room for two people to squeeze into. But enthusiasm did not falter."

Purpose and Description of Project

This yearbook journalism project was designed to give students the necessary skills to shoot effective color and black-and-white photos and to process prints suitable for use in student publications. This goal was to be reached through a combination of demonstrations, group discussions, lectures, slide shows, assignments, and lab work—and, more important, through photographing student life.

Activities

Students used a 35mm camera to practice loading and unloading the film, holding the camera steady, and focusing, framing, and shooting with the proper meter reading. Next they were instructed in and practiced darkroom and developing procedures with their own pictures. Student knowledge was reinforced by labeling photos with the film speed, shutter speed, and aperture setting, and negatives with the printing time, filter number, and aperture setting. A professional photographer visited the class twice to critique the students' camera-handling and composition skills, and to discuss guidelines for photographing people. A yearbook consultant then instructed students on cropping and layout techniques and led a question-and-answer session on the procedures and problems of printing a student publication. Following their instruction and practice, the class produced a mini-yearbook to demonstrate their newly acquired skills—and they shot, developed, and printed all but the group photos for the school's 68-page yearbook. Their work was evaluated on their ability to use the camera and to produce good-quality prints. Rickard used worksheets, quizzes, and tests to determine where students needed reinforcement.

Materials, Resources, and Expenses

Students used a 35mm camera, film of various speeds, and typical darkroom supplies. The teacher also provided reference books on photography in general and on student publications and developing, printing, and enlarging photos in particular.

Acting as consultants were a photography instructor from Northwestern Oklahoma State University who helped with photo developing and printing, a local teacher (and photography buff) who critiqued photos and introduced composition techniques, and a yearbook sales representative who assisted with yearbook layout and publication difficulties.

Outcomes and Adaptability

Rickard believes that "Because successful photography depends on the photographer's perception and style, the students sought subjects that interested them; therefore, they communicated their thoughts and feelings." Dubious at first that they could provide quality photos, the students gained self-confidence, patience, and self-discipline as they were trusted to use the camera and prepare their own prints. Enthusiasm remained high as students worked together to meet a common goal, and their judgment and sense of impartiality improved as they became more selective in taking challenging and inspiring photos.

While the original project was carried out with borrowed equipment, the Board of Education responded to student interest by building a school darkroom and purchasing photo equipment. A Yearbook Journalism II course was also established to stimulate more student creativity.

Rickard states that this project can be easily adapted to any form of journalism—mass media, newspapers, or photography—by altering the photo assignments. Rickard also finds this equally appropriate for science, art, and creative writing classes at the junior and senior high school levels.

Teaching Teachers How To Utilize Photography in Their Curriculum

Daniel Philip Shepardson

Utah State University
Logan, Utah

Subject: Teacher Education/ Photography

Grade: Higher Education

"The originality of [this] teaching module lies at the identification and application of photography in instruction, and the relationships between the instructional modes of photography and cognition."

Purpose and Description of Project

Daniel Shepardson designed and implemented a teaching module to show teachers how to use the instructional modes of photography within their instruction and curriculum. His goals were (1) to improve teacher instruction by giving them an understanding of the basic instructional modes of photography and how to integrate these into the curriculum, by enhancing teacher creativity, and by enabling teachers to improve the creative and cognitive domains of their curriculum, and (2) to improve the creative and cognitive skills of the students. Shepardson used his module with 15 experienced teachers who explored the five instructional modes of photography: (1) exemplary photography, in which the teacher uses photography to develop examples of curriculum concepts; (2) evaluative photography, in which the students are assigned to photograph particular concepts; (3) interpretive photography, divided into four levels; (4) creative photography, in which students use photography to develop an essay or slide show illustrating a concept; and (5) writing enhancement, in which photos are used to stimulate students' creative thinking.

Activities

The module activities were divided into four phases. During the two-hour implementation session, the first three phases were carried out. As the first phase, the teachers participated in lecture, group discussion, and question-and-answer activites on the relationship of Bloom's taxonomy of educational objectives to the instructional modes of photography. The group also brainstormed a list of example activities utilizing these instructional modes. The emulation phase involved a slide demonstration of how photography's instructional modes are used in instruction. Prior to the third phase, teachers were asked to use the criteria established by Bloom to prepare indiviudal written evaluations of the instructional modes of photography; this was followed by a lecture and discussion of the relationship between cognition and the instructional modes of photography. Shepardson introduced

the final phase—curriculum development—and then the teachers were given two weeks to use the camera to take and develop instructional concept photographs. The photos, exemplifying the various instructional modes, were to be used in developing a lesson plan designed to meet the specific needs of each teacher.

Materials, Resources, and Expenses

In developing his teaching module, Shepardson made use of a number of written resources on educational objectives. He provided each teacher with all the necessary lesson plans, handouts, and photographic examples that explained and illustrated the instructional modes of photography and how to use them. The total cost for exemplary slides, handouts, film, and developing came to $180.

Outcomes and Adaptability

An analysis of pre- and post-tests indicated that teacher understanding of the instructional modes of photography and how they could be integrated into the curriculum had improved significantly—from a mean score of 18% to a mean of 43%. That the module stimulated interest in utilizing photography in the curriculum is shown by the same questionnaire; a mean rating of 4.3 resulted when the teachers were asked whether they would now use photography as an instructional tool. Shepardson found the teachers' enthusiasm to be unexpectedly high. His subjective evaluation of the curriculum plans and materials developed by the teachers led him to the conclusion that teacher creativity had increased.

Shepardson suggests that the module is ideal for both pre-service and in-service teacher education programs. He finds the "hands-on," emulation, curriculum development, and practicum activities particularly valuable.

Mellowing With Age, A Closer Look

Joyce Delinda Johnson

Bay Point Elementary and
Gulf Beaches Elementary
St. Petersburg, Florida

Subject: Science: Human Growth

Grade: K-5 (Gifted)

"While touring one of the recreational centers that offered so many varied activities for the elderly, one student blurted, 'I can't wait to get old.'"

Purpose and Description of Project

Joyce Johnson used the camera as an integral part of a wide range of activities designed to help her K-5 students realize that aging is a "natural, continuous process" and develop sensitivity to the needs, desires, and capabilities of the elderly. The unit, developed for gifted students from two schools, focused on the normal physiological effects of aging, the psycho-social needs of older people, and their environmental needs.

The youngsters took pictures of every aspect of their activities, including interviews, special events planned for and with the elderly, field trips, and school appearances by resource people. They also wrote about their experiences and about how their feelings changed during the project.

Johnson says that the project helped dispel many of the children's misconceptions about aging, helped them empathize with older people, and resulted in many warm, sharing relationships between young and old.

Activities

In addition to studying books and films on various aspects of aging, the children had access to a wealth of resource people—both older community members and people who work with the elderly. To help the students understand the physical effects of aging, for example, a clinical specialist in geriatric nursing not only presented medical data but also helped them experience through simulations what it is like to have sensory losses. Activities touching on the psycho-social impact of aging involved a professor of geriatric care, a group of elderly musicians, a student's great-grandmother, and representatives from the American Legion. The environmental needs of older people were discussed by activities directors of apartment buildings and a nursing home.

The students also photograhed things signifying "young" and "old," such as babies and worn shoes, interviewed elderly relatives and neighbors; took field trips to nursing homes, retirement facilities, and recreational centers; performed plays focusing on the elderly; presented a talent show featuring both young and old; visited with a baseball league of players in their 70s, 80s, and 90s; produced newsletters about the project and their reactions to it; and wrote poetry, journal entries, and photo-stories based on their experiences.

Materials, Resources, and Expenses

Human resources included the many elderly community members, experts on aging, and workers with the elderly who interacted and shared their knowledge with the students. This included about 20 individuals and groups who visited the schools, the many residents and clients of the facilities visited by the children, and the relatives and neighbors who were interviewed.

Students used several different types of cameras, including six provided by the students themselves and three provided by the teacher. (No information on materials or cost available.)

Outcomes and Adaptability

Johnson says that the students' improved factual knowledge about aging was demonstrated through testing. Their changes in attiude were made evident through their willingness to come in contact with and communicate with the elderly—including volunteering for additional interviews; their weekly log entries; class news articles; poetry; and written philosophies and perspectives on aging. She stresses that all the project activities were

enhanced by photographs, which helped to capture memories, serve as reminders of how special many of their subjects were, make the children realize that all age groups have some common physical and mental traits, dramatize that talents such as singing and dancing are ageless, and highlight such common needs as love and belonging.

The teacher believes that similar activities would be suitable for any age or academic group and are particularly important as senior citizens come to make up a larger and larger proportion of our population.

Shoot Four: The Seasons

Susan Linda Wrightson

Ramon C. Cobbs Elementary School
New Castle, Delaware

Subject: Science

Grade: 1

"In preparation for each of the four photographic excursions, the children were instructed in what to look for to capture the essence of a season [on film]. . . . [and they] showed great interest in learning about the camera."

Purpose and Description of Project

Susan Wrightson used photography to teach her students to identify the four seasons. Students took their photos of seasonal landscapes, trees, and plants, and people wearing appropriate outer apparel and participating in typical outdoor activities. The photos were then used in class to reinforce their knowledge of the seasons.

Activities

The first graders had weekly one-hour photo lessons from January through mid-May. In preparation, the Delaware Art Museum loaned Wrightson an exhibit of artwork. Comparing and contrasting the photos and paintings proved to be a helpful activity. Students talked about what to look for outside to capture the essence of a season. The school provided each student with a Diana camera which they could take apart and put back together. They used the cameras to learn camera parts and to take filmless practice shots. Wrightson helped them learn to use the "class camera," an Instamatic, and again they practiced without film. Three Kodak slide/tape presentations on how to take good photos and achieve good composition offered helpful tips prior to the actual photo activities.

The first two field trips were made in January and the last two in May. Each trip around the school grounds took about an hour as each student took one photo of the landscape, people involved in outdoor activities, appropriately dressed people, or trees and plants. The photography excursions were followed by a day of evaluation. Wrightson selected student photos to use in identifying, sequencing, matching, and comparing activities.

Materials, Resources, and Expenses

The art reproductions from the Delaware Art Museum were free, while the Kodak presentations cost only the necessary postage. Wrightson purchased the instamatic camera for $30 and the camera bag for $36. She estimated film costs at $15 per 20 photos.

Outcomes and Adaptability

After using the students, photos for evaluation activities, Wrightson found her class could identify seasons and match season with appropriate outdoor apparel with 80% accuracy. They were even more successful in sequencing seasonal photos and matching season with appropriate outdoor activity.

As for the motivational success of the unit, the students enjoyed taking and working the photos. "Every Thursday afternoon many children asked if we would be having photography class today." Their photos would prove useful for future science classes because the first graders succeeded in their photographic efforts. The activity could be expanded to a full year in order to cover all seasons, rather than just winter and spring. Wrightson also recommends the project for higher elementary grades, with each student preparing an individual album of the four seasons, complete with written descriptions. If four distinct seasonal changes do not occur in a particular area, students could photograph animal behavior, holiday celebrations, or crop changes.

Take To The Woods

Bernice Ann Parrott

Bethesda Elementary School
Lawrenceville, Georgia

Subject: Science

Grade: 1-5 (Gifted)

"Students learned many scientific concepts, as evidenced by the fact that their average scores on botany pre- and post-tests increased from 35 percent to 90 percent correct."

Purpose and Decription of Project

In this project, Bernice Parrott used nature in all its guises—from flowers to snakes—to stimulate the development of research, writing, and photographic skills among 48 gifted students in grades one through five. The youngsters constructed their own nature trail; studied mammals, birds, reptiles, insects, and spiders; and learned to identify numerous trees, flowers, and other plants. They also recorded their findings in a three-part slide/tape presentation and in informational, story, and poetry books—all illustrated with original and copied photos and drawings.

The teacher says, "motivation was never a worry! Interest and enthusiasm were high and to add the ingredient of photography was fantastic."

The books were the results of the children's choosing various natural phenomena they were interested in photographing and researching—ranging from "Our Favorite Snakes" to "The Life of a Tulip."

Activities

Since photography was the hub of this project, the children first studied photographic techniques through films and then gained hands-on experiences during a class visit by a professional photographer. Then Parrott instructed them in how to develop photographic reports—including how to select a topic, develop objectives, analyze the audience, collect information, and make storyboards. They also learned about outlining, writing, editing, and rewriting.

Other activities varied according to students' talents and interests. For example, in their "What's Underground?" project, first-graders dug down about a foot, studying the various life forms in each layer of earth. Second-graders collected and studied branch water, discovering protozoans under the microscope. All grade levels contributed information and photographs to the first slide/tape show and wrote portions of the script.

The culminating activity occurred on the state's Gifted Education Day, when the students showed their slide presentations, displayed and read their books, and provided guided tours of the nature trail for 20 different classes. They also presented a copy of their

books and slide/tape shows to the school's library so that their work will help students for years to come.

Materials, Resources, and Expenses

Human resources included the forester
and botanist who shared their knowledge and starred in two of the slide shows; parents who helped type the books; a photographer; scout troops, leaders, and parents who helped construct the nature trail; and the school's art teacher and various other school personnel.

Equipment included a movie projector, slide projector, book binding machine, typewriter, visual-sync recorder, other tape recorders, a slide editor, a tripod, several lenses, and a variety of cameras, including the teacher's 35mm. The project, notes Parrott, cost about $250. However, she adds that her project called for two copies of all products, but that would not necessarily be required in other situations.

Outcomes and Adaptability

Parrott reports that her students became very interested in photography; developed research, planning, and organizational skills; developed a sense of order in their writing; and became better observers and more sensitive to their environment.

The project also generated a high level of response and support from the school as a whole and from the community.

The teacher adds that, while this project was carried out in a gifted resource program, "any teacher can use nature as an inspiration for creative photography, writing, and research."

A View from Our Window

Marian Duffy Brovero

Crescent School
Waldwick, New Jersey

Subject: Science

Grade: 2

"Not all windows frame so contented a natural scene as ours. But they all are dream holes into which a child of any age may drift."

Purpose and Description of Project

Marian Brovero found the camera to be the key to helping her second-graders become more sharp-eyed observers of their natural surroundings—including weather, birds, plants, animals, and insects—and to making them more appreciative of this natural world. She also incorporated these ecological studies into a whole range of academic areas.

While Brovero started the youngsters out in their observations by focusing on what could be seen from their classroom window, the children were soon taking pictures much farther afield—around the school, at home, and on field trips. They also recorded their observations and activities in individual journals, were involved in such classroom activities as sketching from photos and making graphs of outdoor temperature changes, and, finally, produced a "View from Our Window" album, a copy of which was donated to the school library and displayed for others' viewing. The youngsters also had enough photos left over to make Mother's Day albums.

Brovero says that the students became enthusiastic photographers, became remarkably adept at noticing details and spotting camouflaged creatures, and showed significant increases in attention span.

Activities

The teacher grouped the project activities under five main headings. The children took photographs throughout to document their sightings and numerous activities. Examples:

Science—observed weather, compared temperatures, learned camera operation and how film works, and observed birds.

Math—made graphs of temperatures and of the locations, times, and activities of birds during sightings; compared prices of film, developing, bird seed, etc.; compared weights on labels of seed and soil; made puzzles out of pictures.

Language—read books on birds and researched J.J. Audubon; recorded all activities in journals; wrote nature poetry; alphabetized "bird words"; and invented bumper sticker slogans relating to nature.

Art—made a bird banner of felt; sketched and labeled bird parts;

made a mobile of nature photos; used colored markers to properly fill in bird outlines; and sketched from photos, using a magnifying glass to point up details.

Social Studies—read migratory maps and made their own map of the wildlife center they visited; photographed and discussed their favorite places at home; compared their own work habits to the activities of birds; and shared their activities and materials with other second-graders.

Materials, Resources, and Expenses

Human resources included a parent who gave the class a demonstration of watercolor painting; the music teacher who prepared songs on nature and animals; the art teacher who assisted the children in making their bird banner; and the librarian who helped with bird identifications and put the children's album and banner on display in the library.

Total cost was $200—for two cameras (Kodak Champ Instamatic and Kodak 6000 disc), film for both cameras, a pair of lightweight sport binoculars, flash bars and developing.

Outcomes and Adaptability

Brovero believes that the most important outcome of her project was that her children became more enthusiastic about learning, remarking that "enthusiasm may have a nebulous rating on a national scale but with the young (and perhaps all students), it's the whole ballgame." And she hopes that the most lasting result will be "a concerned love of nature."

The teachers thinks that the project would be suitable for any students.

Growth of a Bean Documented by Child and Camera

Janice C. Jackson

Countryside School
Barrington, Illinois

Subject: Science

Grade: 3

"Children were truly amazed that the camera had recorded the bean's growth more accurately than they. They were certain when they did their drawings that they were drawing what they had observed!"

Purpose and Description of Project

With the assistance of "the simple little bean seed," Janice Jackson helped her third-graders learn about sequential growth from planting to maturity and compare the use of the camera to the use of their own senses in observing and documenting natural growth.

In addition to photographing the growth of their plants, the children each kept a daily written record of the growth process in his or her own scientific journal. The journals also expanded to include related learning experiences, such as inferences about the pace of growth, drawings, graphs

of growth, notes from lectures and field trips, and stories personifying the beans. The students also studied photography extensively, drew or constructed their vision of the camera of the future, and wrote about its use.

As a result, says Jackson, the children "became scientists, documenting over a long period the wonders of the process of natural growth" and "learned first-hand the vital importance of the camera to science."

Activities

The children designed covers for the journals and transferred their notes from a camera lecture given by another staff person.

The youngsters now planted their seeds in pots, took their first photos, recorded the planting procedure, and made inferences as to when the seeds would germinate. Over the following days, the class continued to photograph the development of their seeds, to make drawings of what was happening under the soil, and to write notes on the process. By day 10 of the project, many seeds had begun to sprout, and the children now began to photograph, chart, and predict the rate of growth. They also discussed why some seeds did not germinate.

During this time the class also continued to read about photography, went on a field trip to the Chicago Library Cultural Center to view prints and study how people got visual impressions before the invention of the camera, and were visited in class by a professional photographer, who discussed photography as an art form. They subsequently drew flow charts of how to take a picture and had several cameras available for examination. They also discussed the use of the camera in various professions and visited another school's planetarium to see how photography is used to study and learn from the stars.

Back in "bean country," the students continued to observe their plants through maturity, did individual dramatizations of the growth of a bean, and wrote stories personifying a bean, with their journals as sourcebooks. Each child also shared his or her bean story and a planned futuristic camera with the entire class to get their reactions.

Materials, Resources and Expenses

Human resources were the teacher and professional photographer who instructed the children in camera use and photographic techniques. Equipment and materials included a Minolta X-570 SLR camera, three rolls of 36-exposure black-and-white film, a tripod, some student-owned cameras, bean seeds, peat pots, potting soil and vermiculite, and booklets to be used as scientific journals. Jackson says that project costs run less than $15 if teachers have access to a camera and tripod and can get the film processed and prints made in the school darkroom.

Outcomes and Adaptability

Jackson says that the "project extended science across all curriculum areas in a manner that nurtured and maintained a high level of enthusiasm throughout. The children couldn't wait to enter the classroom each morning to compare their bean's growth with that of their classmates." She also found that the students progressed in the areas of writing, observing, making inferences, reasoning inductively, and graphing. They also became so interested in photography that several went on to enter a National Geographic Society photo contest.

The teacher feels that the project would be suitable for grades three though six expanded into other areas of sequential growth, such as the construction of a building.

Natural Awareness

Kathleen Anne Cain

Traditional School—Remington
Maryland Heights, Missouri

Subject: Science

Grade: 4

"I felt that this was one of the greatest learning experiences I could have shared with these students this year."

Purpose and Description of Project

Within an overall unit on the life cycles of plants, insects, and small animals, Kathleen Cain involved her students in photography to particularly highlight and record plant growth and make close-up studies of plant parts.

Students learned about "bulb" forcing, planted their own crocus bulb, and photographed the bulb as it developed; learned to take close-up photos of flowering plants; and set up a movie camera to produce a time-lapse film showing growth of one of their own plants. The students framed their best shots for display at the school and a special evening exhibit for parents. Their time-lapse film also was presented to the parents and was shared with other classes.

The teacher found the photographs particularly useful in making students aware of the stages of plant development and pointing up the specific parts of flowers. The students' degree of interest was demonstrated by the fact that they were involved in time-lapse photography even though that had not been one of the planned aspects of the project.

Activities

The students were first taught basic photography by staff of a local camera store. This included camera handling, the main parts of the camera, and the elements of a good photo. Shortly afterward, they attended a workshop on bulb forcing at the Missouri Botanical Gardens, where they took pictures. They then planted their own bulbs and photographed them at various intervals during the project.

The youngsters next learned about close-up photography from two professional nature photographers, who demonstrated a 35mm camera with a telescopic lens. They then photographed flowering plants borrowed from a commercial greenhouse. At this point, the class moved into time-lapse photography, studying animated films and setting up a camera and tripod to show the growth of one of their plants. They also simulated plant and animal growth with clay representations and created an animated film.

In preparation for displaying their work, the students next chose their best pictures to frame, arranged them in sequence, and wrote captions. They also worked with the school music instructor to select music that best enhanced their time-lapse film. Photos and films were shared with classmates and parents.

Materials, Resources, and Expenses

Human resources included professional photographers, camera store personnel, and the school music teacher. Students used their own cameras, film, and flashbulbs for most of the photos, while demonstration cameras, the 35mm camera and close-up lens, and movie camera were borrowed. Total cost of $200 went for movie film, frames, and film processing. Other equipment included a film projector, tape recorder, and Kodak Ektagraphic Visualmaker.

Outcomes and Adaptability

Cain reports that the students learned how to take regular and close-up photos and to make time-lapse and animated films, which enhanced their studies of plant growth and plant parts. They both scored well on their life cycles tests but also were proud to display their photographic products.

She believes "that any of the activities or lessons could be reproduced easily" but notes that other teachers might want to schedule the unit to avoid long interruptions such as spring break since that means missing a substantial amount of plant growth.

Photography for Academically Gifted

Helen Coats
Jackie Leebrick
Jane Sronce

Merrick-Moore School
Durham, North Carolina

Subject: Science

Grade: 4 (Gifted)

"Students learned through experimentation that trial and error and a little patience could produce the results they wanted. . . .Students actually learned to think differently."

Purpose and Description of Project

The teachers at Merrick-Moore found that photography met the needs of their Enrichment Program which was designed to stimulate thinking on several levels. Over a six-week period, 15 gifted fourth graders were taught visual judgment in skill-oriented lessons that presented photography as a science and as an art, and that challenged them beyond the regular curriculum.

Activities

The following activities highlighted Merrick-Moore's project:

Visual literacy. First, students were introduced to compositional design terms and were shown examples.

Then the class was divided into three groups and each was given a set of five magazine photos. They sequenced the photos to create an original story line and connected the photos by elements of composition. Each group chose a spokesperson to describe to the class in compositional terms the visual and imaginary connections among the pictures.

Research. Each student was assigned an inventor or a photographer to research. This activity proved difficult because encyclopedias were not sufficient.

Photograms. Students were introduced to the process of making photograms and were shown examples. Students brought objects to make the photograms. First, they discussed what images might appear as a result of the objects being transparent, translucent, or opaque. With the ceiling lights off, they placed the objects on the photographic paper, used the ceiling lights to expose the paper, and then processed the paper through the developer, stop bath, and fixer.

Pinhole camera. The teachers made five pinhole cameras out of oatmeal boxes. Students worked in groups of three to take each other's pictures, which were then developed by Leebrick.

Picture taking. Students were divided into three groups, one each assigned to portrait photos, photojournalism, and art/abstract photos. Students viewed examples of each and discussed their respective forms. After practicing with an instant camera, each student was allowed to take two pictures as part of a final project.

Materials, Resources, and Expenses

Leebrick, the school district's Media Production Specialist, helped students with darkroom procedures and the visual literacy activity.

Teachers handled the equipment at times to ensure the best possible results, although, whenever possible, students gathered the materials and used the equipment. The teachers also made five pinhole cameras, three of which worked well. A 35mm camera and instant cameras, with film for both types, were also needed. The estimated cost of this project was about $200.

Outcomes and Adaptability

Students showed they could readily "compare, interpret, and analyze emotional and compositional design." They were able to explain how light-sensitive materials and photochemicals created images. Their research taught them that, although photography has changed greatly in 150 years, primitive cameras can still create pleasing images. Their picture-taking activities produced thorough understanding of the types of photography and knowledge which they found valuable when viewing the photography exhibit. According to the project coordinators, "These students learned through experimentation that trial and error and a little patience could produce the results they wanted. . . . It demonstrated the extent to which the students were actually learning to *think* differently."

The project can be replicated, say the coordinators, if the size of the group is not more than 15 and if darkroom facilities are available.

Botany Made Picture Perfect

Katherine Ann Recca Paulus

Dadeville Annex
Dadeville, Alabama

Subject: Science Botany

Grade: 4–5 (Gifted)

"Unexpected for me was not the learning that took place, but rather the drive the students displayed while participating in this project."

Purpose and Description of Project

Eleven gifted students participated in this 22-week botany/photography unit. Katherine Paulus' goal was to increase student awareness of plants in their environment by using plant identification activities as well as picture taking and film processing. Additional activities included lectures, field trips, research, and independent study. Each student was expected to combine individual research and photography to produce a final research project—book, postcards, game, or learning center.

Activities

The students spent one to three hours once a week on the project. In class, they viewed films and filmstrips on plants and their identifying characteristics. They discussed plant types; made twig people; pressed plants; grew "water" plants such as carrots; made prints with leaves, twigs, and potatoes; researched such specific areas of botany as morphology; listened to a guest speaker who discussed plants of Alabama; constructed and landscaped a model park; and completed their individual research projects on plant identification.

The photographic aspects of the unit required students to learn camera parts and terms as well as camera angles, composition, and darkroom techniques. Field trips included a trip to a photo lab to learn about film processing, a nature hike and a visit to the Auburn University Arboretum for the purpose of taking pictures, and a session at Auburn University's darkroom where they practiced enlarging Paulus' own negatives and developed and printed their own photos for their plant books or whatever else they had chosen to produce.

Materials, Resources, and Expenses

Films, filmstrips, plant identification charts, and tapes were ordered through Auburn University's School of Education. Students used inexpensive 35mm cameras, 30 rolls of black-and-white film, film processing for 11 of the rolls, photographic paper, and darkroom supplies. Both Paulus and her students used reference books on botany and photography. The cost of the unit was just under $200.

Other resources were the Alabama Forestry Commission Park which provided information and educational materials, the Auburn University Art Department which allowed use of its darkroom and provided advice on photographic equipment, and a local photo lab which offered photographic supplies and advice.

Outcomes and Adaptability

Paulus thinks that her goals were met because the student research products showed awareness of differing plant characteristics; the students worked willingly, even before school and at home, on their projects without Paulus' prompting; they displayed an eagerness to take numerous pictures and to produce their final projects; and they saved their money to buy the cameras they had used to continue their photography on their own. According to Paulus, "Students exalted in the opportunity to use a camera with their names on it, to take roll after roll of film and to explore the plant world through nature walks, research, and photography."

In Paulus' opinion, both the botany and photography aspects of the project could be expanded as separate studies—in specialized areas of botany for the former and in the use of filters, lenses, and composition techniques for the latter. She suggests combining photography with English, social studies, or math—as long as the teacher is aware of the students' general abilities and experiences, the extent of their knowledge of both photography and the subject in question, and the time frame they would require to achieve some type of success with the activity.

Coal and Its Effects on the Environment

Arthur David Bosnak

Pleasant Hill Elementary School
Pleasant Hill, Tennessee

Subject: Science

Grade: 6

"This project is designed to show young people that they are part of the environment, not outsiders."

Purpose and Description of Project

Arthur Bosnak and his students set out to demonstrate the environmental damage incurred in the mining and burning of coal for an energy source. During the project, they took pictures as they visited a coal-fire steam plant and a hydroelectric dam to study the comparative efficiency and cleanliness of each electricity-producing system. They also carried out several experiments to show graphically the effects of coal mining and burning byproducts on both surface and atmospheric water, plants and soil, and aquatic organisms.

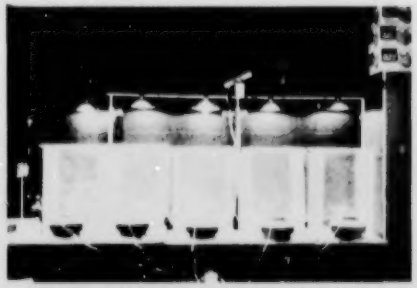
As a result, says Bosnak, the students began to understand the complex problems of supplying energy and how energy production has harmed the land, air, and water. To share their findings with others, the students developed a slide/tape show for presentation to classes at another school. Pre- and post-tests indicated that the show was successful in changing "attitudes and increasing their awareness about environmental issues." In addition, of seven experiments students entered in a regional science fair, two won first-place awards and two took second-place prizes.

Activities

Students reviewed various materials on acid rain and were presented with the results of an acid rain study previously done by other students. They were then divided into groups to work on seven separate experiments to demonstrate in the classroom the effects of coal-burning waste products on air, rain, surface water, plants, soil, and aquatic organisms. The individual in each group who wrote the best lab report represented the group's project at the science fair. Both slides and still photos were taken throughout the experiments.

During the experiments, the students gassed plants with sulfur dioxide (released into the air during coal burning); sprayed plants with solutions of sulfuric acid (produced when the gas reacts with water vapor in the presence of sunlight); and subjected snails, worms, and algae to strip mine drainage, aluminum (leached into soil and water as a result of acid rain), and thermal pollution.

The students also monitored rainfall and collected samples of water from ponds, streams, and seepage areas around both reclaimed and unreclaimed strip mines and measured the pH levels (acid/alkaline balance). The results of these experiments dramatically demonstrated the dangers of pollution. Further, their rainfall monitoring showed pH values from 2.0 to 4.5 (any value below 5.7 indicates acid rain) and brought home to them that such pollution is a personal rather than abstract problem.



Various students went out into the field to collect water samples and photograph strip mines, but the major field trip of the project was the class' photo tours of a coal-fire steam plant and a hydroelectric dam to study the advantages and disadvantages of each method of producing electricity.

Finally, the students developed their prints and slides, wrote and taped a narrative, developed questions to test the slide/tape show's impact, and presented it to other classes.

Materials, Resources, and Expenses

Bosnak and his students used one school camera and two of the teacher's cameras (Minolta XE-7 and SRT-200) and 16mm and 300mm lenses. Film and an E-6 processing kit cost $85. Other cost items were the field trips ($105), vinyl lettering and poster board for the science fair presentations ($90) and one organism ($5) that was not collected by the students. The automatic simulated acid rain experiment cost $130, and the thermal study, $35. However, Bosnak notes that the acid rain experiment could be done for $8 if hand sprayers are used.

Most of the scientific equipment and supplies were borrowed or available at the school. These included a pH meter, a hach kit, humidifiers and timers, chemicals, heaters, and a spectrophotometer.

Outcomes and Adaptability

In addition to the scientific knowledge his students gained, Bosnak feels that the most important outcome of the project was that students began to realize they "are the keepers of the environment and that whatever they do may influence other parts of the ecosystem as well as themselves." The students' slide/tape presentation was also successful in its mission of bringing this understanding to others. Tests showed that classes viewing the program had an 87.6 percent increase in environmental awareness.

Bosnak believes that most facets of the project could be instituted anywhere, and that the focus could easily be turned to other fuels, such as oil, if the project were carried out in a non-coal-producing area.

Using Photography To Learn About Crawfish

William Gene Fuchs

Nimitz Middle School
San Antonio, Texas

Subject: Science

Grade: 6

"Many students were surprised that crawfish and other species of wildlife have managed to survive the busy lifestyles and close living quarters of a big city."

Purpose and Description of Project

William Fuchs and more than 100 sixth-graders in four classes set out to learn everything there is to know about crawfish, from how to identify natural habitats and collect live specimens to following reproduction, egg laying, hatching, and growth of a new generation of crawfish. They and the school photographer took some 300 photos of their collecting activities and the complete life cycle of the creature as followed in classroom aquariums.

During the project, the students used the photographs to put together albums of photos and captions to share with their own school and the other middle schools in the district, wrote research reports on both photography and crawfish, and kept notebooks on the developments they observed among their specimens.

Activities

The students began by searching their neighborhoods for crawfish habitats, taking pictures of their activities, and bringing specimens back to class to be displayed in several acquariums. They marked each successful location on a large city map.

Students also worked during this period on research papers about both photography and crawfish. They drew information from the school and city libraries as well as their own discoveries. They also watched movies and a filmstrip showing a complete dissection of a crawfish, studied external and internal parts with an overhead projector, made drawings in their notebooks, and were surrounded by posters and diagrams in the classroom.

From their specimens in the tanks, the students learned how to determine a crawfish's sex, watched the process of molting (in which the creatures lose their exoskeletons), and watched a few of the crawfish who had lost claws regenerate these limbs. They were most eager, however, to have a female lay eggs so that they could watch the entire life cycle. Fortunately, notes Fuchs, "the crawfish cooperated." The students set up a special home for the expectant mother, watched the growth of the embryos inside the eggs, and saw about 200 young begin to hatch in about three weeks. As the babies grew, the youngsters observed the body parts and movements with microscopes and took photos

from the egg stage to the juvenile age of about 85 days. To show the changing size of the babies, the students photographed them with such objects as a ruler, coins, and plastic spoons.

Finally, selected photos and captions were used to make up photo albums detailing the findings students made during the project.

Materials, Resources, and Expenses

Human resources included the school photographer, the librarian, parents who went with students on crawfish expeditions, and a representative of a local photo store who not only arranged for students to visit the store's photo finishing facility but provided a cash supplement for the project.

The students used a variety of personal cameras and film, while the school photographer used a 35mm camera with 100-300 zoom lens for the classroom shots. Also necessary were seven aquariums, ranging from seven to 15 gallons; a variety of other containers for observing specimens separately; and microscopes. Fuchs estimates total cost of the project at $670—including $135 for the school photographer's film and processing; $115 for the students' film and processing; $25 for photo albums; $130 for field trips and teacher travel; $15 for mountings; $90 for acquarium supplies; $30 for food and plants for the crawfish; and $130 for such miscellaneous items as typing, postage, printing, and maps.

Outcomes and Adaptability

Fuchs says that the students were successful in almost everything they tried, including observing and photographing the entire life cycle of the crawfish. "We are extremely happy and proud of the results" of the project, including tests, research papers, notes, reports, and photographs. The students learned to respect the small creatures and treat them kindly.

Other classes considering this type of project could vary it by substituting earthworms, fish, insects, or other creatures.

Eco-Graphics— Photographic Studies of Man's Impact on the Environment

Mary E. Micallef

Tapp Middle School
Powder Springs, Georgia

Subject: Science/Environment Studies

Grade: 6-8 (Gifted)

"Eco-Graphics provides challenging opportunities for children to get involved in their community and to recognize their own potential to impact the world around them."

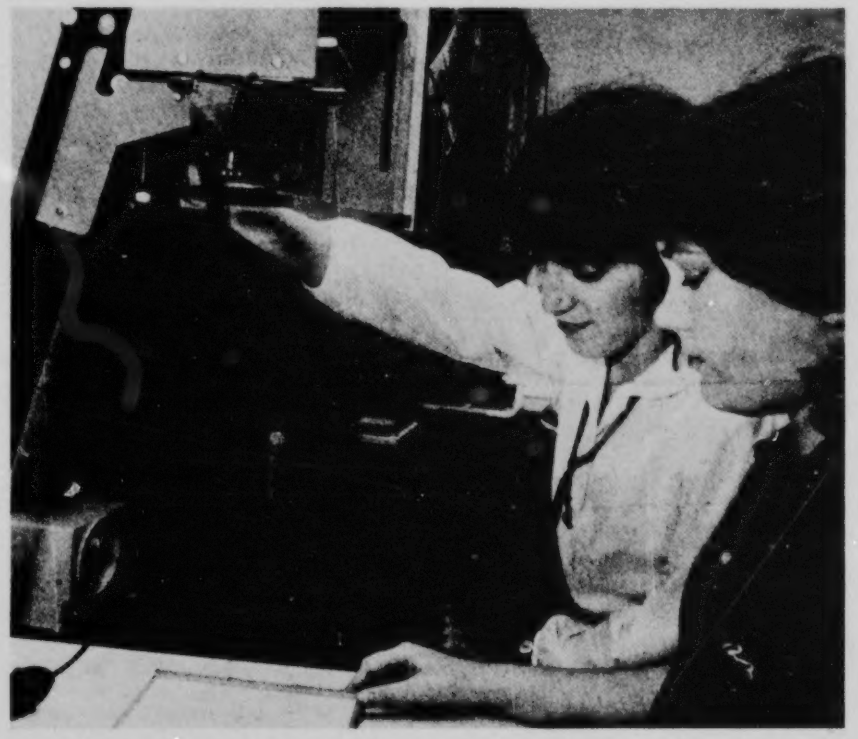
Purpose and Description of Project

Eco-Graphics is an interdisciplinary unit combining photography and ecology. Through it, teacher Mary Micallef worked to make students aware of how destructive the "throwaway ethic" is to our environment, motivated them to discover effective solutions to environmental needs, and generated in them a personal commitment to work for change.

The teacher introduced the approximately 100 students involved in this project to our growing waste disposal problem through class discussion and literature, after which each student chose a particular topic to research in depth. These topics included litter, acid rain, hazardous waste, pesticides, and incineration. The students focused particularly on realistic alternatives to the ways waste disposal is currently being handled. Once the students had shared the information they had gathered with the whole class, they moved on to specific small-group projects. These projects were designed to demonstrate the problems existing in their own community, propose solutions, and then actually bring about improvements by using community awareness and public relations techniques.

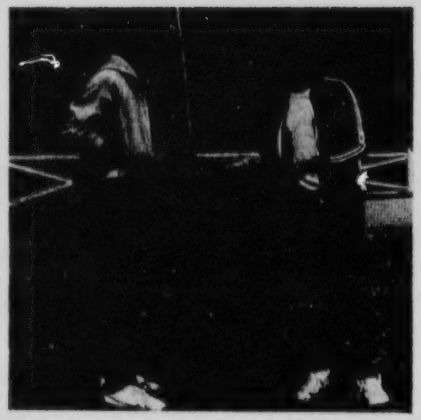
To document and dramatize the environmental damage they found, students used a whole range of photographic techniques—including slide/tape presentations, photo essays, videotapes, collages, and photo displays. They also investigated the economic, political, legal, and personal factors that may impede or spur environmental clean-ups.

One group, for example, interviewed the county manager of solid waste disposal and took slides of the entire waste disposal process, from garbage pickup and compacting to sanitary landfill. They even photographed a filled area that was turned into a county ballpark. They then created title slides, wrote a script, integrated background music, and showed the completed project to the entire school. The slide/tape show is now available to schools and organizations countywide. Another group, in a project titled "A Site for Sore Eyes," photographed what Micallef describes as "littered, cluttered, nuisance, and even dangerous areas in the community" and showed them to county officials. As a result, notices were posted to warn against future littering.



In a culminating project in which all students were involved, the school attendance area was divided into 60 neighborhood units, and the students signed an agreement to pick up litter in their own areas on the designated "clean-up day." The students also recruited neighbors and friends to help on clean-up day and to keep the area clean. Photographs were taken before, during, and after this campaign to document its scope, and the project also drew media coverage.

In summary, according to the teacher, her students developed a solid base of information about the worldwide waste disposal problem, explored their own community in creative and innovative ways, and photographed



the impact of throwaway behaviors on their immediate environment. In the process, says Micallef, "they learned by experience to tell stories and to make a point through photography" and developed a commitment to change that made a difference in themselves and their community. In addition, they honed their research, communication, and decisionmaking skills.

Activities

Micallef launched the project with a graphic display of the astonishing amount of trash that results from unwrapping all the items in just one large bag of groceries. Discussion then began on packaging—how much is necessary, where does it go, what can be done with it?—on how garbage is handled in the students' own homes, and on the "throwaway ethic" and attitudes toward recycling. She also provided students with a massive bibliography of books, articles, resource people, poems, plays, records, films, and videotapes on virtually every aspect of ecology. They used these materials to learn about the scope of the waste disposal problem and as a take-off point for brainstorming possible solutions.

Each student then chose a particular aspect of the topic to research in depth and present to the class. Topics ranged from space junk to Love Canal. In addition to researching among the materials lists provided by the teacher, students wrote to members of Congress, interviewed county officials, and contacted industries. Then they organized what they had learned into individual class presentations that included pamphlets, audiovisual aids, handout sheets, graphs, and displays. Some even invited guest speakers to help the class understand such concepts as "economic feasibility" and "energy efficient."

Through class discussions about these presentations, the students gained valuable insights about recycling, more efficient packaging, laws governing waste disposal, bottle bills, biodegradable material, resource recovery, compost, and other recycling/reusing/reclaiming options.

Then small groups of students explored and photographed their own community disposal problems, focusing on the impact of waste disposal behaviors, laws, systems, and management. Their projects—from actual clean-ups to community surveys about attitudes toward recycling—gained community and media attention and made a real difference. As a result of their individual and group activities, says the teacher, "students became champions of their particular causes."

Materials, Resources, and Expenses

The project made use of a wide range of guest speakers and resource people—from the city mayor to a representative from 21st Century Robotics.

The students used both their own 35mm cameras and the school camera and also took advantage of the school's darkroom and videotaping room. They took both black-and-white and color photos and color slides. Other equipment included tape recorders and carousel projectors, Kodak Polycontrast Rapid RC paper, Kodak chemicals for film and print developing, and display and mounting materials. Assuming the availability of cameras and a fully equipped darkroom, Micallef says that the only expenses are for film, paper, and chemicals.

Outcomes and Adaptability

Micallef found that this project "resulted in community awareness and personal involvement of students, parents, teachers, in school and neighborhood that ranged far beyond the limits of the classroom or the school year." And, she adds, "I was particularly excited about the students' growing self-concept as they telephoned, visited, and successfully interviewed businessmen, public officials, and other sources. The students had solid background information—they knew what they were talking about—and this gave them tremendous self-confidence!"

Also she reports, the project reinforced students' research and analytic skills, sharpened the photographic techniques they had learned the previous fall, and gave them insights into public relations. They also learned what an effective medium photography is to share information, show immediate needs, depict alternatives, and persuade various audiences to become an active part of the solution to environmental problems.

The teacher adds that personal involvement was the real key to student learning during this project, and that this learning was buoyed by the pride students took in "their ability to get something *big* and *relevant* accomplished on their own."

While this project was planned for gifted students in grades six through eight, Micallef believes that other teachers could easily adapt it to the talents and needs of fourth- through twelfth-grade classes. She also suggests that community, church, or youth organizations could tailor project activities to their needs and capabilities.

Resurrection of the Bad River

Douglas C. Holem
Marilyn Bilby

Thurston Middle School
St. Charles, Michigan

Subject: Science/Ecology

Grade: 6–8 (Gifted)

"Photography, when combined with other research skills, can be an exciting learning experience for students. . . . The students were particularly impressed with . . . the well known ability of a picture to 'paint a thousand words.'"

Purpose and Description of Project

A group of 28 gifted sixth through eighth graders participating in an 18-week unit on local ecology was assigned to produce a slide narrative on the Bad River, one of the community's chief natural resources. Douglas Holem and Marilyn Bilby designed the activities to give students and eventually community residents a knowledge of the river's history, past and present economic impact, aesthetic value, and importance as a natural resource for future development. As the students prepared the 30-minute presentation.

Activities

Holem divided his ecology unit into two nine-week sections; during the first section students gathered information on the Bad River, and during the second they produced the synchronized slide/tape presentation for the local historical society.

The students selected 11 river-related topics: land use and abuse, famous people, the future, lumbering, fishing, coal mining, animal and plant life, floods and general history, boating and recreation, water fowl, and pollution. Each student was assigned to a group to cover one of the topics.

A number of resource people visited the class: The director of the local office of Michigan's Department of Natural Resources. He discussed aspects of the river. The village manager related the past and present economic impact of the river. A local historian shared his knowledge of the history of boating on the river. The director of a local group dedicated to cleaning up the river reviewed their problems and future plans. A village resident passed along the folklore of the river.

Students participated in a simulation game that taught them the importance of legislation, taxes, and agencies at all levels, as well as individual responsibility, in preserving natural resources. They used the information they had gathered to produce papers on their particular topics.

During the photography section, two local photographers met with the students; one discussed how to take good outdoor photos and the other demonstrated how to create a good-quality slide program. The student slides were taken during several trips to local sites and were then developed professionally. To put the presentation together, students determined the sequence of topics, selected the most representative slides, and critiqued their own photography skills.

Narration was written, and the music instructor helped the students tape background music. The class selected two narrators and the production was completed. It was later presented at several community functions.

Materials, Resources, and Expenses

The Bad River and those who were concerned with its past and present served as the major resources. They added to "the richness and the sense of community that were important aspects of the program." Actual expenditures for photographic equipment, field trips, film processing, etc., totaled about $100.

Outcomes and Adaptability

The dearth of written resource material forced the students to develop research skills beyond their previous experience. Because there was no textbook for the course, self-reliance and problem-solving skills became essential. Improved student ability to analyze, synthesize, and evaluate were demonstrated. The teachers suggest that "The students' mastery of the content of the course shows clearly for itself in the quality of the completed presentation."

Students "marvelled at how well the data could be transferred to the community through the medium of photography."

The teachers believe that their program's goals and techniques could be applied by any teacher who thinks his or her community would benefit from the knowledge gained during the study of a local natural resource.

Focus on Life

Eugene A. Schmidt

Alan B. Shepard Junior High School
Deerfield, Illinois

Subject: Science

Grade: 7

"The greatest feature of this program was how it 'turned on' the students to learning. Suddenly, the concepts came alive for them. This wasn't something you read about; this was something you had used your knowledge and skills to create."

Purpose and Description of Project

Eugene Schmidt used what he dubbed "photo-tivities" to spur his students' interest in observing and learning about the characteristics and activities of living organisms—from the microscopic creatures found in pond water to towering sugar maple trees. The students could choose any living organism they wished and researched any aspect of its existence. Students located specimens (either in nature or through commercial sources), photographed them, and developed oral and written presentations to explain what was shown in the photos.

Schmidt found that "there was no doubt that the photography was a vital part in the students' gaining additional information about their specimens. It is one thing to read about seed germination and discuss it and even grow seeds in class, but photographing that process to show various stages requires a great deal more knowledge about the process itself." "In addition," says the teacher, "the photos and written reports provide a basis for continuing inquiry all year long—both by the students who developed each display and by others whose curiosity is roused or who are eager to find more in the photos than the original author did."

While, as in any project, some student products were last-minute efforts, Schmidt found that "most were accomplishments of weeks and months of investigation and planning" and "showed creativity, style, composition, thoroughness, and definitely pride."

Activities

Schmidt, an amateur photographer, assembled a finished "photo-tivity" from his own materials to give the students an idea of what would be required of them—to use photos in conjunction with a brief written paper to explain scientific facts. Students had the option of working alone or with a maximum of two partners, and their projects could deal with simple observations or actual experimentations, with little- or well-known phenomena, with simple or complex topics. A variety of topics was discussed in class, decisions about solitary vs. team work were made, and then research began. Information sources included the Life Science text, classroom library, building learning center, the town library, libraries in nearby colleges, and the nearby Botanical Gardens.

Most students relied on the immediate environment for specimens—such as ponds, trees, and icicles—while others purchased such items as fish, tadpoles, and seeds. They took their photos with a variety of cameras after some basic instruction from Schmidt, either going out on their own or, in the case of microscope photos, working under the teacher's supervision in the school's science lab.

Examples of the photo-tivities included: photos of sugar maples in the summer, fall, winter, and spring, accompanied by a paper explaining the reasons for leaf color change, leaf loss, and leaf growth; photos of snails, including their genus and species names and a description of how snails use their muscular foot for locomotion; and photos of dandelions displaying phototropism, with an explanation of what actually happens in the plant for this turning to the sun to take place.

The final photo-tivity displays were judged on the ability of the students to orally relate their meaning, the quality of research in the written paper, the use of specimens to demonstrate scientific concepts, and the quality of the photos as demonstration elements.

Materials, Resources, and Expenses

Cameras provided by the students included 35mm, Polaroid, Kodak Instamatic, and Kodak Disc. For microscope photos, they used the school science department's Polaroid ED-10, which mounted directly onto a microscope. The youngsters took up to 12 photos each, and Schmidt says the average cost per student for film, processing, and all other materials to produce their photo-tivities was $4.83.

Outcomes and Adaptability

Schmidt observed improvements in research skills, writing style, thought processes, compilation of materials, and observational abilities. The photo-tivities not only continued to spark discussion among the seventh-graders after they were completed but were displayed during an orientation for incoming junior high schoolers to introduce them to the science topics they would be studying.

The teacher enthusiastically endorses the use of photography in other subjects and grade levels. He specifically suggests that the project could be adapted to the photographing of phases of construction or design for industrial arts or to showing how to measure time according to shadow lengths in math. And if cost is a big factor, he notes, an entire class could work together to produce a joint photo-tivity.

Picture This!

Dee Otero

Lolo Middle School
Lolo, Montana

Subject: Science/Outdoor Education

Grade: 7

"Several parents expressed that they wished they were back in seventh grade again because they never realized that learning could be so much fun."

Purpose and Description of Project

The overall goal of the seventh-grade science classes was to develop a conscientious awareness of the interrelationships between humans and their environment. Photography played an integral part in this science program as it was used in conjunction with other activities to:

- reinforce the importance of observation and recordkeeping.
- develop awareness of the interaction and interdependence among living and nonliving components of our ecological system.
- instill positive attitudes about our environment.
- establish concern for human impact on the environment.
- introduce photography as an art form.
- develop a sense of pride in one's work.
- prepare students to make decisions and solve problems regarding the environment.
- develop class comradery to illustrate the interdependence of man and the ecosystem.

Activities

To meet the above objectives Lolo School took its seventh graders to Glacier Park two days each fall.

The related activities are these:

1. Pre-trip Orientation: Students devoted three class sessions learning the parts of the camera and practicing. They learned how a picture is physically and chemically taken, and were allowed to develop and print film on a limited volunteer basis.

2. On Site: Students used 35mm cameras to take pictures of anything that had special meaning for them at the park. They were divided into four groups for a scavenger hunt.

3. Post-trip Activities: When students were given a practical exam using materials and photos gathered on the trip, 90% indicated an overall understanding of their environment and its relationships. After student critiques of the photos, based on originality, quality, and impact, students compiled and annotated their slides for presentation to other students and to community organizations. Throughout the year students utilized their photography skills to illustrate

reports and to share experiences with their pen-pals—a science class in another part of Montana.

Materials, Resources, and Expenses

The initial cost of supplies for 65 students was about $400 for six Polaroid cameras, film and film processing, photography and art supplies, paper products including spiral notebooks for student journals, and resource materials. The largest expense was the trip itself: $158.40 for lodging, $210.52 for meals, and $1,287.00 for transportation (the latter paid for by student fundraising). Of the three 35mm cameras used, two belonged to the school and one was borrowed. Students used one of these cameras with a telescopic lens for close-up photos.

Other teachers were actively involved throughout the project. The home economics teacher taught the students camping and hiking nutrition; the art teacher showed them pencil sketching techniques and assisted the student photographers, as did two other teachers who were amateur photographers. During the trip itself, two park naturalists presented information on the park's bears and bald eagles.

Outcomes and Adaptability

Dee Otero found that 90% or more of the students achieved to some degree the eight goals listed above. Otero's informal survey of all teacher and student participants indicated the outdoor program was a huge success and that the photographic activities were particular favorites.

It is Otero's opinion that duplication of the activities elsewhere is not only feasible but also worthwhile. Because the activities served as a fall "kick-off" to the school's science, social studies, and language arts programs.

My Square Meter

James Walker

Jackson Memorial Middle School
Massillon, Ohio

Subject: Science

Grade: 7

"The utilization of photography as a means of 'freezing a moment in time' for extended reflection and study is a unique experience in our curriculum."

Purpose and Description of Project

This project utilized a very flexible outdoor activity to encourage more careful observation of the natural environment. Students investigated, photographed, and cataloged discoveries in a square meter of undeveloped land near the school. James Walker placed emphasis on the students' investigative study of their areas rather than on simply identifying specimens. In addition, Walker aimed to apply classroom learning techniques outdoors, to utilize photography as an educational tool, and to develop organizational and technical writing skills.

Activities

Initially students were given an overview of the project and instructions on assembling specimen kits. They were then given outdoor activity sheets and soil and rock study sheets. Each student selected one square meter and marked it off unobtrusively. There they spent several class periods collecting and/or photographing soil samples, rock specimens, small plant specimens. They also photographed each other at their sites.

Outdoor activities were alternated with classroom lab sessions, during which students analyzed soil samples, conducted soil pH tests, scratch-tested and analyzed rocks, described and photographed their plant and animal specimens, shared experiences, and examined supplemental classroom specimens.

The culmination of the project was the reports prepared by the students after a lecture on ecosystems. The reports contained a general description of the square meter; completed soil, rock, plant, and animal study sheets with photos; and analysis of the square meter's basic ecology; and a bibliography of the references used.

Materials, Resources, and Expenses

Walker acknowledged the support of his principal and many of his colleagues (some of whom also successfully completed his project), and particularly the efforts of a fellow science teacher who acquired and developed the land lab area for outdoor activities.

Students supplied their own specimen kits with one meter of string, small wooden markers, envelopes, plastic bags, ruler, spoon, scissors, and a shoebox for the kit and specimens. The school provided a 35mm camera, copy stand, bulk-loaded black-and-white film, supplies for photo developing and printing, hand lenses for studying specimens, and soil testing kits. Walker himself supplied the study sheets, rock and wildflower comparison specimens, a grid card for photographing specimens, and numerous written resources. He also developed and printed all the photos for the class of 25 in the school darkroom at a cost of $13 for film, paper, and chemicals.

Outcomes and Adaptability

Walker characterizes the project as "one of the most memorable events of our year." As students prepared their reports, they strengthened their skills in metric measurement, critical observation, data organization, and independent study. The creative freedom they were given and the excitement of outdoor activities served to motivate their work, as did the use of photography as an educational rather than a recreational tool. The students manifested concern and even empathy toward their little "world," but faced a difficult struggle in conceptualizing an ecosystem. Walker says, "At this point in their development it is felt that the struggle itself is outcome enough." Walker found that most students met all the stated objectives and that the apparently complex project

went smoothly and presented no serious problems.

Walker finds this activity "extremely adaptable" to diverse classroom situations, financial strictures, and subject areas. It has already been implemented by some of his colleagues. Various sections could be readily added, deleted, or modified in response to student abilities. The use of photography indoors and out helps eliminate weather as a factor, and, in fact, allows the project to serve as a supplementary activity throughout the school year.

Rock Slides—Geology Through A Lens

William C. Philips

Central Middle School
Dover, Delaware

Subject: Science/Geology

Grade: 8

"Rocks aren't red. Why are those rocks red? How can water cut through a rock? How long does it take? Where'd you take that picture?"

Purpose and Description of Project

William Philips' intent was not only to gather instructional materials for an eighth-grade inquiry lesson on geology, but also to make students more observant of the geologic features around them and more aware of how they might have been formed. According to Philips, the most important outcome of this project was "that students began to observe and to question what they saw around them."

Activities

At the end of the school year, Philips sought students completing the seventh grade to participate in the project during the summer. The 100 volunteers attended a two-day mini-course during which they received an orientation to geology and discussed slides of common as well as very unusual geologic formations. They were then asked to take photos of interesting formations in their own locale, as well as outside the area. Those students without cameras were encouraged to collect photos from magazines or to draw pictures of formations they observed.

At the end of the summer, the students (now in the eighth grade) submitted their pictures to Philips who, with a group of students, selected the most instructional photos to use in an introductory unit on geology. Those students whose pictures were selected described to the class why they took their pictures and shared any special feelings they had about the landscape. Then the entire group offered their observations and asked questions—from the viewpoint of a geologist. Finally, they formulated theories as to how certain features might have been formed and why they were or were not found in their area.

Follow-up activities included a visit from a geologist at the University of Delaware who described his reasons for becoming a geologist and some of his experiences, highlighted by a slide presentation on how geologists traveling by raft studied the Grand Canyon. Philips also presented his own slides of geologic formations in Great Britain, Mexico, and the United States. In each case, student discussion again focused on the kinds of questions a geologist might ask.

At the end of the unit, students visited Calvert Cliffs Park in Maryland where they took pictures and collected fossils which became the basis for further study and discussion.

Materials, Resources, and Expenses

Students either provided their own cameras or submitted magazine photos or drawings. Their photo presentations were augmented by those of Philips and Dr. Wehmiller of the University of Delaware. As a result, the cost of the project was minimal. The school needed only to provide slide and opaque projectors so that any form of student submission could be viewed and discussed.

Outcomes and Adaptability

Philips finds that the project results in "an inquiry lesson that excited and educated the students. . . ." Because many students, accustomed to the comparatively level terrain of Delaware, had never seen a mountain or a valley, they were stimulated by the variety of geologic features they saw. After they formulated questions about each picture, they were eager to research answers—and delighted to learn that scientists start with questions and search for answers, just as they were doing.

Students were evaluated on their ability to name formations, interpret evidence as to how they probably were formed, and explain why they were or were not found in the immediate area. This evaluation could take the form of a short answer test, an essay test, or a laboratory exercise.

Regardless of where one lives, the terrain would have features that could be studied, and the experiences of the students, the teacher, and any outside resource persons lend further diversity. As a result, it is feasible to implement this project, with minor changes, almost anywhere. Philips notes, "The more contrast exhibited by the areas shown, the more effective this unit will be"—particularly in densely populated cities. Since having a camera is not a requirement, all interested students are able to participate in this inquiry-oriented project.

Intergenerational Friendship Photo Album

Mary T. Purcell

Ocean City Intermediate School
Ocean City, New Jersey

Subject: Science/Human Growth

Grade: 8

"All students responded with such tremendous depth of feeling that I realized that if there is a need for educational reform, it must include more interactive motivational experiences such as this, and less text and memorization."

Purpose and Description of Project

Mary Purcell and her 12 art students regularly visited a local nursing home to learn more about the problems and rewards of growing old. The students used the camera to "express their feelings and communicate their ideas about the topic of gerontology," explains Purcell. They also kept journals about their experiences with their photographic partners at the home. Both students and residents learned about photography and compiled their photos and thoughts in "photographic friendship albums."

Purcell's goal was to have the youngsters acquire "respect for an individual's life experience and gain insight into the positive aspects of the aging process and an awareness of the negative factors." At the same time, she felt that taking pictures would help make the students more visually literate and more aware of how photographs can capture and communicate emotion.

Activities

The class began by reading and discussing a short story about the events that motivate a teenager to visit an elderly nursing home resident. The teacher then instructed them in the operation and handling of simple instant cameras and introduced them to the idea of keeping a journal of their thoughts and feelings during the project. The youngsters began the journal by writing about their responses to the story and to the idea of the project. They were also visited by the activities director of the nursing home, who explained the nature and purpose of the home and its daily routines, and by the school psychologist, who discussed "ageism." Students devised and filled out "introductory/awareness" cards to help prepare the senior citizens for their first visit.

Students' first visit to the home was spent getting to know their resident-partners and working with them to create original designs for their photo albums. The covers were then laminated and pages of tag paper inserted by the students for their own and their partners' albums.

As the students and residents visited together on subsequent occasions, both took photos and mounted them in their books. The students wrote captions for their photos either during the visits or back in class.

Materials, Resources, and Expenses

The "most valuable and delightful human resources" for the project, stresses Purcell, were the senior citizens who volunteered to share this photographic experience with the students. Also assisting were the home's activities director, the school's psychologist (also a human development instructor at the community college), who spoke on ageism, and the school social worker and counselor, who helped Purcell develop an attitudinal survey for the students.

Equipment and materials included eight loaned instant cameras, photo corners ($2.50), instant film ($230), and flash bars and batteries ($20). Materials for making the albums were available from the school.

Outcomes and Adaptability

Purcell says that the students became more knowledgeable about gerontology, including both the physical and mental aspects of the aging process; clarified their own concerns about aging; and were able to verbalize their experiences and reflect on them by use of their journals. They also learned about photography and how to make their pictures expressive, and

sharpened their observational skills. Their attitudes toward elderly people also changed significantly, according to the pre- and post-surveys filled out by students. In short, says the teacher, "the children grew emotionally during this project."

Purcell also feels that this project would be relevant for all grade levels and that "this interpersonal-intergenerational exchange contributes to the overall personal growth and development of students that is interwoven into all curricula."

Water Education

Richard Duncan

Whitford Intermediate School
Beaverton, Oregon

Subject: Science/Oceanography

Grade: 9

"Students were able to share their knowledge with classmates using photographs that they had actually taken themselves! Enthusiasm was very high. . . ."

Purpose and Description of Project

Richard Duncan's two-month oceanography/photography project was implemented in five ninth-grade classes. Students each selected one of eight topics—water and its relationship to agriculture, energy, transportation, recreation, the environment, or man; water cycle and physical properties; or water conservation. Then, working in groups of two to four, they prepared a photographic report or display on the topic. Duncan's major goals were to teach these students the importance of water and to familiarize them with basic photography techniques.

Activities

After students had selected their water-related topics and divided into groups, Duncan provided them with handouts to guide their project planning. They decided among themselves whether to prepare a report or a display.

A professional wildlife photographer gave the students tips on the lenses, films, and techniques used in outdoor photography and shared some of his own wildlife slides. An employee of Oregon's Department of Fish and Wildlife offered many creative ideas on photographing local wildlife and suggested nearby resources where students could gather information for their projects.

The students performed various water tests and experiments, and, for a week, they examined different types of plankton they had gathered on an earlier trip to the Oregon coast. At this point they learned how to use the microscope. They visited the school library to do research and contacted state and government agencies—e.g., the Oregon State University Extension Service and the U.S. Department of Agriculture—for further information.

Students presented their finished projects to the class. At this time they discussed what they had done, how they had taken their photographs, and what they had learned while completing the project.

Materials, Resources, and Expenses

Numerous resource persons contributed to the success of Duncan's project: the school media specialist, and the district media specialist. An employee with the Department of Fish and Wildlife offered suggestions while a staff member from the Department of Agriculture supplied the students with many books and publications on water and agriculture.

Cameras were used by Duncan and his students to prepare the assigned projects and to document activities. A camera adapter made it possible for the students to photograph microorganisms. Scientific equipment included water test kits.

Outcomes and Adaptability

Students were given tests periodically throughout the project to check their level of understanding of the various topics. Their scores showed they had achieved a broad knowledge of why water is necessary for life, and what organisms live in water. Duncan was surprised to note the students' appreciation of water in an aesthetic sense in their class discussions and in the photos they selected for their projects.

Student feedback on the project indicated that most found it exciting and worthwhile. "It was the type of project students enjoy since it involves them as active learners and givers of information when they share their results and findings with the rest of their classmates."

Duncan suggests that this photography/water education project could be easily transported anywhere since any school would have some type of natural water supply in the area.

Celestial Photography

Ray L. Taylor

Oak Harbor Junior High School
Oak Harbor, Washington

Subject: Science/Photography

Grade: 9

"One student was overheard to say, 'Gee, those planets really are out there, aren't they!' That made the entire project worthwhile."

Purpose and Description of Project

In this ninth-grade science elective course, Ray Taylor combined photography and astronomy so that students learned photographic skills, gained an awareness of photography as a scientific tool, and gained an expanded understanding of Earth as a planet and its relationship to other celestial bodies. The resulting pictures, taken with a camera and a telescope in conjunction, include shots of the sun with sunspots, the moon during several of its phases, and planets Mars and Saturn.

During the project, reports Taylor, the students became masterful photographers and adept at processing their own film, making contact sheets, and producing prints. In fact, they became so involved in their new-found skills that they started using cameras in other areas to record field trips, athletic events, social activities, and day-to-day doings around the school. They also learned about astronomy, but Taylor says that one outcome he did not expect was their "wonderment." "Once an object was sighted," he explains, "many students were in an obvious hurry to get it photographed so they could show others that it really existed."

All in all, the teacher says he "has never been so excited or involved in any particular project in all of my 27 years in the classroom!" And the project has also made an impact on the school as a whole, causing so much student interest that an additional section of ninth-grade science—including "Celestial Photography"—was added to the following year's schedule.

Activities

Activities during this program were placed by Taylor into three sections: "lights," "camera," and "action."

In "lights," the students learned about the 35mm single reflex camera, its nomenclature, accessories and functions. They also became familiar with the Celestron-8 reflecting telescope and its operation in conjunction with the camera.

In "camera," students were introduced to the techniques involved in processing black-and-white film and making prints. This included loading a negative loading tank (by sight, blindfolded, and in total darkness), mixing chemicals from developer to fixer, producing contact prints, and making enlargements.

In "action," the students combined what they had learned in taking both day and night photographs of the sun, moon, and planets, as they focused on various phases and configurations of these bodies. They also kept log books on their activities.

Materials, Resources, and Expenses

Taylor and his students were aided by English and other science teachers in writing about their activities and gathering details about celestial mechanics and characteristics.

Equipment and facilities used included a darkroom, developing tanks, HC-110 developer, Dektol developer, stop bath, rapid fixer, photo-flo, plastic tubs, thermometers, safelight, tongs, photographic enlarger, film (ASA 400, 20-exposure), positive paper (polycontrast, medium weight), 35mm single reflex cameras, telescope with solar filter, and log books. While Taylor does not provide specific cost data, he says the cost is "less than might be expected." He notes that telescopes without camera attachment equipment can be used by "placing the lens of the camera at the focal point behind the ocular of the telescope."

Outcomes and Adaptability

Taylor reports that his students became enthralled with photography. They were impressed with the wonders to be found in the sky, and developed the skills to permanently record their sightings. They also learned to work together and came to appreciate patience since "film and prints just can't be hurried." The students enthusiasm is demonstrated by the fact that, although they will be moving to another building for their sophomore year, they've asked if they can come back for the photographing of Halley's Comet.

The sky being equally available to all of us, there is obviously no problem in implementation of a similar project in any school district.

A Day at the Zoo

Robin Shaw

Corono del Sol High School
Tempe, Arizona

Subject: Science/Biology

Grade: 9-10

"It was really thrilling to see kids in the 1980's excited about something going on at school for a change."

Purpose and Description of Project

Robin Shaw proposed this project when her school district eliminated field trips from the annual budget. Many of her students had never been to the Phoenix Zoo, which she had hoped to visit in conjunction with their study of wildlife, ecology, conservation, and the environment. With no funds to take Shaw and her students to the zoo, they set out to bring the zoo—and the excitement, motivation, and learning that result from field trips—to their school.

Activities

The original plan for a slide/sound presentation snowballed into a day-long series of activities. The following comprised the project's final agenda:

The student-made audiovisual presentation was the "heart" of the project. Students attended workshops on all aspects of the photographic process. The zoo's photographer offered tips to improve their picture-taking and provided general information on the animals for the accompanying script. The final program was compiled from over 400 slides taken at the Phoenix Zoo by a group of student volunteers. However, all students were involved in preparing this hour-long program—taking pictures, being photographed, developing film, and mounting slides. Shaw and her students then wrote and recorded the final script with background music.

A National Park Service ranger led a discussion on "environmental ethics."

Participants viewed "Among the Wild Chimpanzees," a National Geographic Society Film of Jane Goodall's 25 years of research on chimpanzees.

A wildlife manager from the Arizona Game and Fish Department discussed "Wildlife-Oriented Careers."

Volunteers from the Phoenix Zoo Outreach Program brought reptiles, birds, arachnids, and mammals to the school for a presentation on animal adaptations.

Participants watched "The Way I See It," a Kodak film that showed students a different view of science—through the eyes of a camera.

In addition to taking part in the day's activities, students (and some teachers) wore animal costumes. Each student researched his or her animal's characteristics, adaptations, etc., and designed a costume based on this information.

Materials, Resources, and Expenses

To prepare the slide show, Shaw and her students used 35mm cameras, 15 rolls of slide film ($4.95 per roll of 36 and $1.95 per roll for developing), high contrast film for title slides, slide development chemicals and materials, two carousel slide projectors and screen, a tape/slide synchronizing dissolve unit, a cassette tape recorder for recording narration with music, and an amplifier/speaker. A video cassette recorder, a video camera, two monitors, and an overhead projector were used during guest speaker and outside film presentations. Shaw was able to obtain most of the materials and equipment using the school's audiovisual budget. Students used teacher-prepared worksheets to plan and evaluate the project.

In addition to the resource persons mentioned above, two audiovisual consultants provided suggestions for preparing the slides, constructing library displays, and coordinating visual and written resources. Of course, the largest resource was the Phoenix Zoo which provided the slide subjects and much of the information used for the script.

Outcomes and Adaptability

Shaw says that student involvement "far exceeded their involvement had I done all of the preliminary research and work for an actual field trip." The attention and cooperation of the local media and community resource persons increased student motivation and enthusiasm—not only among the biology students but also throughout the entire student body. Shaw finds this a terrific accomplishment, and adds that "my students were very proud of their effort." Student worksheets indicated that their knowledge of ecology, conservation, and related topics had increased dramatically, and their costumes showed true understanding of animal adaptations.

Shaw feels that it would be easy for a teacher interested in conservation and/or animals to carry out the same type of program in cooperation with a zoo, park, museum, or arboretum. She strongly recommends that the slides be developed and mounted by the students—"much less expensive and it is a marvelous learning experience. . . ."

Photo-herbarium

Donald Buntman

Johnson Creek High School
Johnson Creek, Wisconsin

Subject: Science/Biology

Grade: 10

"On an individual basis this project can be continued for a lifetime by interested students."

Purpose and Description of Project

This project was designed as a special activity for student volunteers. They were to create with photographs, rather than dried, pressed plant material, a mini-herbarium that would complement the teaching of a biology unit on the plant kingdom. The use of photos would avoid disruption of the local woodlots and particularly the collection of endangered plant species. In addition to increasing students' knowledge of plant characteristics and diversity, Buntman also sought to increase students' knowledge of principles of photography, and their appreciation of its uses as a scientific tool for recording information and as an art form in producing aesthetically pleasing results.

Activities

Buntman spent several days on preparatory discussion of plant groups, procedures for recording information, proper photographic techniques, and procedures for mounting and labeling photos. He used a slide/tape presentation to show the concept of the herbarium and to give students examples of what the finished product could look like. A student handout described exact project requirements: (1) Students must take photos of all the major plant groups that show group characteristics for identification purposes. (2) Photos must be mounted on 3 × 5 index cards. (3) The cards must be labeled with group name, habitat, locality, date taken, and student's name. (4) The cards must be organized from least to most complex plant group before being turned in for evaluation.

One class period was spent on demonstrating camera use and on discussing close-up photography, lighting, focus, depth of field, film speed, and exposure. Students were encouraged to do their own additional reading on photography. Then each student shot one roll of film which was commercially developed. One day was set aside for mounting and classifying photos.

Each photo-herbarium was evaluated primarily on the student's ability to identify, place, and label the photos, but also on photographic skills. The least weight was given to aesthetic quality because this was the most subjective aspect.

Materials, Resources, and Expenses

Written resource materials included books on photography and on plant identification. Although students used a variety of cameras, Buntman found that 35mm cameras produced the best results. They also used zoom and close-up lenses, a flash attachment with extension, and a tripod. The students made use of the nearby forests and woodlots and their local neighborhoods to find photo subjects.

Outcomes and Adaptability

In Buntman's view, his students enjoyed the activity and were successful in meeting his set learning goals for the biology unit as well as for the photographic activities. He believes, based on his experiences, that with minimal instruction the average biology student can produce a very fine photo-herbarium. The need for access to a wide variety of living plants need not be a limiting factor because students could use parks, or even flower boxes and pots, as sources for specimens.

Buntman recommends this activity as an "extra" project for a group of students because the cost of purchasing and developing film for an entire class might be prohibitive. Beyond providing a means for teaching plant diversity in any high school biology curriculum, the completed projects would be appropriate for use in other subjects—e.g., as resources in life science and elementary classes, as references in art classes, and as a means of studying intrinsic geometric patterns in math classes.

Photo Crystallography

Stephen A. Zolock

Greensburg Salem Senior High School
Greensburg, Pennsylvania

Subject: Science/Chemistry

Grade: 10-12

"Students at any age would marvel in amazement as they watch crystals grow under the microscope or in the macroscopic world."

Purpose and Description of Project

Stephen A. Zolock made photography an integral part of his students' study of the growth and structure of crystals so that students would have a permanent record of these delicate formations at various stages. The students took photos throughout seven days of experimentation, arranged their pictures with captions on poster paper, and attached summaries they had written of their conclusions. The finished products were displayed both in the chemistry room and in the crystal showcase in the science wing of the building.

Zolock says that the project generated an enormous amount of self-pride in the students "as they accomplished

the photographic project totally on their own." It also helped the young people learn to manage time better, work efficiently in teams, analyze and interpret detail in photos, and use scientific methods to learn about the nature of crystals.

During the project, the students photographed every step of their activities—growing crystals in supersaturated solutions and studying the resulting crystals; studying the magnified structure of crystalline solids in everything from aspirin to snowflakes; watching the growth of crystals as chemicals were dissolved in water or melted over heat; seeing how well the crystals they had grown acted as prisms by using homemade spectroscopes; and making models of crystal growths.

Activities

The day before the student experiments began, the teacher spent one class period going over basic camera operations, handling, care, and photographic composition. The students then worked in teams to carry out subsequent activities and took pictures of every step.

Students prepared saturated and supersaturated solutions of such salts as sodium nitrate, copper sulfate, and sodium bromate. The solutions were allowed to evaporate for 24 hours; larger crystals were removed and attached to strings to dangle in the solutions and continue to grow.

Students used compound microscopes to observe and describe such granular crystals as mica, asbestos, and table sugar. They also dissolved various chemicals in water or solvents and watched crystals develop as the solutions evaporated, and observed crystal growth resulting from the heating of chemical solids.

The teams constructed their own spectroscopes out of shoeboxes and experimented to see which of the crystals they had grown themselves (from the initial supersaturated solutions) were best suited to produce a light spectrum.

Using their own photographs, observations, and research, the students constructed models of crystals with styrofoam spheres.

Using photos they had taken at each stage of the project, the student teams arranged their photos on poster paper, and attached captions and summaries of their findings. Each team gave an oral report of its work. The displays were then opened to wider audiences, and photos detailing the total project were mounted sequentially in an album.

Materials, Resources, and Expenses

Various school staff cooperated with and provided material for the project—microscopes and slides from the biology department, poster paper from the art department, and typing by the business department.

The total cost of film for 21 students, processing of photos, slides, photo album, and Tasco Photo/Projector Microscope with 110 camera was $280. Loaned by the teacher were a 35mm SLR Canon camera and a Kodak-500 Electronic Flash camera. Types of film used were 36-exposure 100 Kodacolor VR-135 and 24-exposure Kodacolor II 110 for color prints; 20-exposure Kodachrome 64 for color slides; and 20-exposure Kodak Plus-X for black-and-white prints.

Outcomes and Adaptability

Zolock reports that the use of photography enhanced his students' studies in a number of ways. It generated excitement and enthusiasm about the subject of crystallography, helped the students improve their observational skills, and recorded the results of their experiments for later, more in-depth study. The photo crystallography album resulting from these students' efforts will also help future students, says the teacher, as succeeding classes use, add to, and improve it.

Stressing the importance of the camera as a "tool that will enhance the scientific process," Zolock urges other teachers to incorporate photography in classroom activities. "An innovative teacher at any grade level could adapt in part or entirely the simplified procedures of photo-crystal growing into a classroom learning experience," he asserts. He also notes that if the teacher has access to a camera and a camera microscope, the cost per student for film and developing would be only about $7, and that the cost could be reduced even more by producing slide shows rather than print displays.

Wild Flowers of Mercer County

Phyllis Higgins Davis

Princeton Senior High School
Princeton, West Virginia

Subject: Science: Biology and Photography

Grade: 10–12

"Suddenly, I was thought to be an expert on wild flowers. Hardly a day went by that I was not asked such questions as, 'I saw a white flower about six inches tall with a lot of petals. What was it?'"

Purpose and Description of Project

Phyllis Davis started out to have photography students take slides of wild flowers that could be used by the school's biology classes, since their inner-city school is far from wooded areas or unmowed fields and field trips for all the classes would be financially prohibitive. She ended up generating "wild flower fever" not just among her students but among parents, grandparents, other community members, and civic organizations.

Not only did the photography students get new equipment and a new unit on developing and mounting slides, they wound up also learning about wildflowers. The biology students not only learned about flowers, they also got in on the photography events, and students in the gifted classes became involved with both the photography and wildflower aspects of the project. The school also now has a Photography Hall of Fame, and the winner of the first annual spring and fall photo contests has been honored with a plaque engraved with his name and the date.

Results of the project—which will continue and expand—Davis reports, include the photography contests; a set of 83 slides of 45 species of flowers, which are shown to biology classes and community groups such as garden clubs; and individual wild flower notebooks created by the biology students that include drawings, reports, and information on plants that are edible, poisonous, rare or endangered, used by wild life for food, and beneficial for medicinal value. A less concrete but equally important result, adds the teacher, is that several classes of students and their families have become wild flower enthusiasts and have gained a greater appreciation for nature in general.

Activities

Davis traded classes with the photography teacher and the gifted teacher so that she could discuss the project with these students and teach them a unit on close-up photography that covered use of lenses, the importance of depth of field, choosing a shutter speed suitable for stopping the movement of windblown flowers, and likely places to find wild flowers.

The photography students were then required to take slides of wild flowers and develop and mount them. Further, any of these students who identified a wild flower for Davis and provided basic information about it could gain extra credit. Since only one student could "claim" each flower, the teacher found students watching for her car in the morning to be sure they were the first for a particular flower.

The slides taken by these students were then used with Davis' biology classes to help them in identifying flowers growing in their county. These students were also required to put together individual wild flower notebooks and to learn about taxonomy (the study of the general principles of scientific classification) so that they could also use a list of key characteristics to categorize flowers. Many students involved their families in the project and were surprised how much their parents, grandparents, and neighbors already knew about flowers. They came back with comments such as "My neighbor said this flower (bloodroot) was used by the Indians to make war paint. Is that true?" These community members also formed an "early warning system" to inform students that certain flowers were beginning to bloom.

As a result of these activities, students produced the core of a growing slide collection and will be participating in twice-yearly photo contests at the school, with awards including both monetary prizes and (for the top winner) a tuition-free photography workshop sponsored by the state Department of Natural Resources.

Materials, Resources, and Expenses

Human resources included relatives, neighbors, and friends of the students who assisted in locating, identifying, and providing information about various wild flowers. The teachers of photography, art, and the gifted also cooperated. From the community, came members of the local camera club, who judged the photo contest and critiqued slides for the students, and a retired botany professor who served as a consultant.

Students used their own 35mm cameras or borrowed cameras from the school. The teacher purchased for the school 100 feet of Ektachrome 64 film, a bulk loader, Ektachrome E-6 kit for processing, and slide mounts. Students not in photography classes used outside processing. An instant slide printer was used to make prints from slides to include in various products. A school slide projector and screen were also used to show slides at school. The total of $560 that Davis received from two grants allowed these purchases and carried the project through the summer to its fall completion.

Outcomes and Adaptability

As a result of this project, reports Davis, photography students had a unit on developing and mounting slides that they would not otherwise have had. All students involved learned a great deal about flowers and gained an increased appreciation of nature. The school gained a collection of more than 80 slides on wild flowers, which would be tripled by fall, and these slides are being shared with biology students as well as community groups.

Davis' biology students' ability to identify wild flowers soared, and many earned extra credit—some enough to pull up otherwise failing grades for the semester. The school art teacher will also be using some of the slides from which her students will do drawings and paintings. In addition, the local civic league has asked if it can adopt the school and help students develop a wildflower garden on the campus.

Davis thinks that any school could adapt this project to study area flowers and plants, or use similar techniques to study historical sites, rock and earth formations, or local fauna. If a school has no photography class, she notes, students and teachers in the subject matter areas could shoot their own slides.

Photographing Physical Science Phenomena

William David Alexander

North Kansas City High School
North Kansas City, Missouri

Subject: Science/Physics

Grade: 12

"The project combined the research of a term paper, the precision of an experiment, and communication through a new medium."

Purpose and Description of Project

William Alexander and his nine students studied several phenomena involving the interaction of light and matter and simple mechanics. They captured the processes and results of their experiments on film. The project not only helped dramatize the properties of light for the students, it also resulted in four slide/tape shows with which other students will be able to observe experiments that are difficult to reproduce regularly in the classroom.

The students divided into four groups and concentrated on experiments in the areas of diffraction, holography, interference patterns, and spectroscopy. Each group had to research its experiment, set up and run the experiment, and successfully collect the expected results, all the while photographing each stage of the process. Each group also had to write and tape a narrative explaining the theory behind and results of the phenomenon that was being demonstrated.

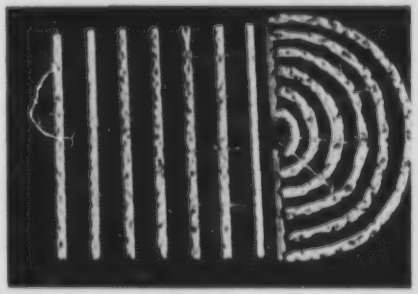
While the students found dealing simultaneously with both scientific and photographic variables "really tough," reports Alexander, "there was a genuine euphoria when the students screened their final programs." In addition, he says, other students are already asking when they will get to do similar experiments.

Activities

Students spent several periods doing preliminary research in choosing their topics, assessing the materials needed for their experiments, and learning how to operate the necessary photographic equipment. Each group then developed story boards specifying the shots it needed to explain its particular experiment.

The group working on diffraction, for example, set up an object between a white screen and a light source so that diffraction patterns would be shown on the screen to demonstrate the bending of light waves.

Test shots of the experiments using black-and-white film were taken and the photos analyzed, which sometimes required modifications to a group's story boards. When such



technical difficulties had been dealt with, the students took color slides to follow their final story boards and wrote and taped their narrations, with accompanying background music.

Materials, Resources, and Expenses

Human resources included the school's audiovisual librarian, who gave a seminar on use of the school's camera and recording equipment; the photography teacher, who provided advice, resource materials, and use of darkroom facilities; the physics teacher, who lent equipment and materials; and the art and industrial teachers, who advised on the design of the slide shows.

Experimental materials included: spectroscope, gas discharge tubes, high voltage coil, strong magnet, Nichrome wire loops, chemicals, torch and burners, helium-neon laser, objects such as washers and BBs, glass plates, diffusing lenses, sample holograms, Kodak SO-173 film for holograms, Kodak D-19 developer for hologram film, Wratten gelatin filters, photo flood light, holders and shades for equipment. Production: 35mm cameras, tape cassettes, various types of film, slide carousel, tripods, copystand, close focus lenses, telephoto lens, filters, cable release, tape recorder with audio pulse, and slide projector.

The $200 NEA/Kodak grant went for the hologram film and developer, gelatin filters, film and processing, cassettes, carousel, and photographic filters.

Outcomes and Adaptability

Alexander says that the students involved in this project had "a greater excitement for their organized material than is typical with written-word forms." In addition, he states, they took considerable pride in their work.

The teacher believes that the "concept of students communicating their work in slide/tape form should be adaptable to many settings," as well as to younger students. However, he does advise that both small class size and a high level of student responsibility are required since the groups need to operate simultaneously at different sites under various conditions.

Enhancing Learning in the Biology Laboratory

Dr. Thomas R. Lord

Burlington County College
Pemberton, New Jersey

Subject: Science/Biology

Grade: Higher Education

"Overall, any educational activity that would require the student to recollect his or her involvement in the proceedings would be enhanced by the use of sequential filming."

Purpose and Description of Project

Thomas Lord conducted an experiment with 98 General Biology II students to see if learning in the biology laboratory could be enhanced by photography. In particular, he wanted to ensure that students were both physically and mentally involved in performing experiments. Lord set three major objectives for his project: to determine if the use of sequential still photos taken by students during their weekly lab exercises would facilitate learning, to find out if using instructor-taken still photos of the lab work in a review session would enhance student learning, and to find out if the use of sequential still photos of the lab experiments would enhance the students' capacity to form mental images of the outside events. Lord divided his

students into four equal groups: (1) the *control* group, which followed the traditional scheme of two lectures, one laboratory, and one seminar per week; (2) the *placebo* group, which received a 20- to 30-minute verbal presentation on the historical significance of each experiment before the weekly lab session; (3) the *photo-record experimental* group, which recorded with black-and-white still photos the sequences of events and outcomes during each lab; and (4) the *photo-review experimental* group, which was given a pictorial review of the lab activities at the end of each sesison with the help of instructor-taken photos.

Activities

All groups of students performed identical experiments during their two-hour lab sessions. Immediately following the lab sessions of the photo-record experimental group, the film was processed by the college's Photography Department and returned to the lab groups. Students who took photos of their lab work were encouraged to use the photos in as many study modes as possible—e.g., preparing for the seminars, writing lab reports, and reviewing for tests.

Materials, Resources, and Expenses

The laboratory materials and equipment utilized would be generally found in any secondary- or college level biology lab. The college provided two Canon cameras for student use, but most lab groups recorded their work with their own cameras. All students used Kodak black-and-white TRI-X film—at least one package per lab group per session and more if necessary. The film was developed and printed by personnel in the school's Photography Department.

Outcomes and Adaptability

Lord analyzed the outcomes of his project using three types of evaluative measures: (1) Students were tested at the beginning and end of the 15-week semester on their image formation and control potentials. The pre-test showed little difference among the groups. The post-test indicated that the two experimental groups had developed a greater aptitude for handling spatial imagery tasks. (2) Three practical lab exams were given during the semester; all question areas—pertaining to macro- and microscopic examination of tissues, organs, and organisms; graph and chart interpretation; and understanding of chemical or physiological events— had been examined during the lab sessions. Statistical examination of the exam scores showed higher achievement. (3) In terms of semester grades, the experimental groups scored significantly better on the lab segment of the course. Observation indicated that the students in the photo-record experimental group took extra care and pride in their work, and their extra precision and interest resulted in greater achievement. Lord concludes that the use of sequential photos does, indeed, enhance student learning and possibly facilitates the translation of external events into mental pictorial images.

Lord suggests that the incorporation of photography into the biology lab would be relatively simple if student or school cameras and the slide projector and screen were available. He finds that photography could be used in a similar way in chemistry, physics, and earth science labs.

Photomicrography in Chemical Investigations

Dr. Vahak D. Sarkis

Fulton-Montgomery Community College
Johnstown, New York

Subject: Science/Chemistry

Grade: Higher Education

"I am convinced that the introduction of microscopy, and with it photomicrography, provides a new dimension in teaching important chemical principles . . . . This, in turn, should improve student interest and performance."

Purpose and Description of Project

Vahak Sarkis introduced microscopic investigations and photomicrography (the use of a camera to photograph microscopic samples as viewed through a microscope) in his chemistry laboratory sessions to give his students new insights into chemical/molecular behavior and greater understanding of what chemistry involves. Microscopy/photomicrography offered students a close look at the behavior of substances at the crystalline level. During the project Sarkis' students used photomicrographic procedures as they identified the six major crystal systems, prepared crystal melt slides and investigated their birefringence properties, and identified and characterized the birefringence properties of household, natural, and environmental substances. Sarkis intended that the photomicrographs would improve student performance and interest by allowing them to more accurately identify structures.

Activities

Students were introduced to the use of the microscope and they then (1) identified the six major crystal systems in terms of characteristic angles, number of faces, and bond lengths. (2) investigated the birefringence properties of crystals belonging to anisotropic systems under crystal melt conditions. (3) observed the birefringence properties of natural, household, and environmental substances. As the students carried out the assigned experiments, they used photomicrography to record the chemical properties they observed; a single-lens camera loaded with color or black-and-white film was placed on each optical microscope, the slides containing the samples were placed on the stage of the microscope, and the photomicrographs were taken.

Materials, Resources, and Expenses

Sarkis' students used simple optical microscopes fitted with optional adapters for the cameras and typical microscope slides. Sarkis estimated the approximate costs for supplies and equipment at $75.00. Chemicals were available in the laboratory, and other

substances were supplied by Sarkis and his students.

Two of Sarkis' colleagues assisted him in preparing a slide presentation: a member of the Graphic Arts Division and the Director of Admissions.

Outcomes and Adaptability

To evaluate the techniques of photomicrography used, Sarkis asked a control group to draw freehand the samples of the chemicals and other substances they viewed through the microscope. As anticipated, the photomicrographs were far superior to the drawings and they became part of a permanent record of chemical substances for purposes of identification and characterization.

The instant gratification students received from producing attractive photomicrographs without much training generated a great deal of enthusiasm for the subject. The simplicity of the process encouraged student creativity as they experimented with different types of illumination and gathered numerous unusual substances for investigation.

According to Sarkis, his project is easily replicable because optical microscopes are in wide use and the collection of chemicals and substances is quite simple and economical. Students can learn the techniques of photomicrography easily and quickly, which ensures both rapid success and a high level of interest. "Anyone with a rudimentary set of instructions can obtain quite good results with minimal, or no supervision." As a result, Sarkis believes his project could be implemented in secondary and even elementry schools; all that would need to be varied to suit the various instructional levels would be the types of samples studied—e.g., hair or insect parts would be appropriate for examination at the elementary level.

Photographic Map Studies

Karen Ruth Burns

Richland Elementary School
Richland, Michigan

Subject: Social Studies

Grade: 2

"In all my 11 years of teaching map studies, I've always wanted a unit like this for my students, but I've not had the financial resources to do it."

Purpose and Description of Project

Karen Ruth Burns used still photographs—both ground level and aerial—in combination with map drawings and use of compasses to help her second-graders gain an understanding of how maps relate to the real world and how they are developed.

After the children learned how to use a 35mm camera, teacher and students went on walking tours of the nearby village to choose the building each wanted to use as a focus for his or her map study project. The teacher commissioned a photographer to take aerial photos—from tree-top level and from about 1,500 feet—of the same areas.

Using these photographs, drawings, and a variety of maps, the children were then able to point out the location of their chosen buildings and decribe the relationship among the different representations of the same area. They also constructed several displays featuring the maps and photos matching locations with pins and strings.

Burns found that this method of teaching map skills greatly increased student motivation and understanding.

Activities

Burns demonstrated camera use during a self-awareness unit in social studies. The children took pictures of each other, cropped and mounted the photos, and constructed books titled "My Book About Me," which included current and baby pictures plus a story comparing themselves as babies and now.

In two walks to the village, the students chose buildings, took photographs, made drawings, and wrote about "their" buildings. They were assisted by a photographer who also helped each child develop his or her photograph. The photos were then mounted and labeled, and each child gave a presentation before the class.

The children then put up a series of displays in the school hallway. The displays sequentially compared the children's drawings to the artist's map, their photos to the same map, and their photos to a smaller line-adaption map. The aerial photos were used in the classroom to show the relationship between the two maps. Also during this time, the students made their own maps (based on the artist's map) and learned to use directional compasses in conjunction with their maps.

Materials, Resources, and Expenses

Human resources were the photographer, plus parents who asisted during the village tours. Equipment included a Konica FS-1 camera with 50mm F1.7 lens, the high school darkroom, 24 directional compasses, and an opaque projector for map enlargement. The project also involved hiring an ultralight plane, from which the photographer took the aerial shots. Materials included two rolls of 135 Kodacolor VR400 film, five rolls of Tri-X film, 50 sheets of Polycontrast RC paper, a sheet of mounting board, tracing paper, and spray mount. Expenses included approximately $50 for film and paper, $75 for the plane, and $15 for miscellaneous supplies.

Outcomes and Adaptability

Burns reports that the children have learned about photography and how to relate real stores, homes, and schools to the map versions of the same places. By starting with ground-level photos and relating them to where the photographer was standing, Burns thinks she was able to give the children a foundation for moving (photographically) to tree-top level and then to a long aerial view while still being able to pick out familiar landmarks. The two key elements to this teaching method, she says, are the use of well-known referents and of photography.

This project could be tailored to any area, advises the teacher and could be adapted to older students by having them draw their own maps from scratch and requiring more detail work. She also believes that such photo-based studies could be useful in many areas of the curriculum, including geography, geology, construction, and art.

We the People

Joshua Taylor, Jr.

Ashlawn Elementary School
Arlington, Virginia

Subject: Social Studies/Language Arts

Grade: 4

"In interviewing and photographing foreign classmates or neighbors, students discovered that these immigrants have maintained elements of their cultures and are contributing to our culture."

Purpose and Description of Project

Joshua Taylor designed "We the People" to provide an interdisciplinary approach to the study of American history. The students involved—fourth graders as well as 30 English for Speakers of Other Languages (ESOL) and High Intensity Language Training (HILT) students in grades K through 6—focused on many of the cultures that have combined to make up the shared American culture. These students were able to conduct cultural research, collect oral histories using tape recorders and cameras, and share their ancestral heritage through family heirlooms and ethnic foods. Taylor hoped that the project as a whole would improve oral and written communication skills, thinking skills, and visual literacy.

Activities

Fourth graders and HILT students were introduced to the interviewing and photography techniques they would need to complete the project. Taylor used slides to illustrate proper techniques. As a roll of film was completed, it was processed and the slides shown to the students. This continuous evaluation process cut down on the number of poor-quality slides and assured student success.

Students researched their names and ancestral backgrounds and shared the information orally with their classmates. Then each fourth-grade student was assigned a non-native-speaking student to interview and photograph. From the information they gathered, these students prepared a chart on cultural differences in food, clothing, shelter, education, and holidays.

HILT students were assigned to interview parents or other relatives to find out why they immigrated to the United States. They photographed family members as well as K-3 ESOL students.

The students' writings, interviews, and photos were then used to complete the major activity of the project—production of both a slide/tape presentation entitled "We the People" and a public exhibit of 15 photos of students and their families. Additional activities included Cultural Sharing Day on which students dressed in native costumes; a multi-ethnic feast; and the showing of the film *Pacific Bridges* which highlighted the contributions of Asian Americans.

Materials, Resources, and Expenses

The ESOL and HILT teachers and the HILT bilingual aide assisted Taylor by translating materials and following up on his writing and art lessons. Parents also proved to be an important resource. The school's social studies curriculum specialist participated, and the librarian taught research skills.

Taylor was able to provide three Instamatic cameras which the students were allowed to take home overnight or on the weekend. The total cost of the project was $140, most of which was spent for the 10 rolls of film used and for processing. A photo finishing company printed and mounted the 8" × 10" photos for the exhibit at no charge. The reel-to-reel tape recorder used for the slide/tape show was provided by the school.

Outcomes and Adaptability

Taylor suggests that his project was successful because "it filled a great void in the social studies curriculum, and school and community relations." Students even used "free and study time" to conduct interviews and complete writing assignments. Students were successful in learning to use the cameras and critiqued each other's work in a positive manner; the fact that 95% of the slides were technically well done gave them a sense of accomplishment.

Although Taylor designed his project for elementary students in an ethnically diverse community, he thinks it can be used as a model at any secondary or elementary grade level at which American history is taught.

Behavior Improvement in Bilingual Students of Native American Background Involving Academic Discipline

Sister Juana Lucero
Marlene Kotchou
Nyla Antone

Topawa Middle School
Sells, Arizona

Subject: Social Studies/Behavioral change

Grade: 4–5

"Pictures taken and used in discussion were effective because the students got more out of taking pictures themselves . . . . they actually got excited."

Purpose and Description of Project

Fifteen Native American students identified as having behavioral difficulties in the classroom—probably as a result of academic difficulties—were selected for participation in this project. These students, members of the Papago tribe, worked with the three participating teachers individually and in small groups to eliminate such inappropriate behaviors as destruction of property, aggression, name calling, classroom disruption, and simply doing nothing in class. The teachers also hoped to develop the students' awareness of the interrelationships among Indian and Western cultures and to help them become confident and respectful of these cultures. The major goals were "to help them become aware of better ways to make their lives happier and more rewarding," and to give them a brighter outlook toward education.

Activities

Five students were assigned to each helping teacher. A series of three or four informal individual meetings were held between each student and helping teacher to get acquainted and increase student confidence and trust. Then the students began to meet in their groups once a week for 15 to 20 minutes during the noon hour. During these sessions, they defined inappropriate behavior and good behavior, and discussed how to help others become better behaved and more respectful of others' right to learn. Speaking to others and reacting to others' ideas were important aspects of these meetings.

Resource persons presented aspects of Papago culture, including the values of behavior and the respect of the Indian people for life. They answered students' questions and classroom teachers explained behaviors valued in Western life. Students used Kodak instant cameras to photograph Papago dances and rites as well as school happenings that reflected Western culture; these photos then became the basis for future discussions. The helping teachers continually encouraged the students to do well in the classroom and held conferences with the parents involved to ensure their cooperation and support of their children's efforts.

Materials, Resources, and Expenses

School district personnel including the principal, the cultural resource aide, and the counselor met with the students to discuss self discipline, self respect, and good behavior. A number of Indian speakers talked with the students about Papago culture and traditions, rituals and dances, their experiences living off the reservation, and the importance of education in improving individual lives as well as Indian life as a whole. A group of Indian dancers and singers demonstrated traditional Papago ceremonies. The instant camera, used constantly throughout the project, was the only equipment used.

Outcomes and Adaptability

It became apparent that "With this repetition of Native culture and Western culture ideas, the students gained a little better insight about some things that might help them to become better informed persons." The use of the camera to record cultural activities particularly excited the students, many of whom had never used a camera before. As a whole, students did show behavioral changes—some more than others—and there was evidence of greater understanding of right from wrong. One outcome not anticipated was the degree to which students turned to the helping teachers for even more help, making it necessary to turn them back carefully toward school work and their classroom teachers.

The three helping teachers suggest that such a project can help resolve behavior problems in other settings. While aspects of Indian and Western cultures provided the central value theme, to show that both are important and should be respected by the Native American student, other important values could be used in different situations.

See the Turkey Run

Judith Leibner
Bonnie Bracey

Long Branch Elementary School
Arlington, Virginia

Subject: Social Studies

Grade: 5

"Photography was an incentive for children to put stories together, to sequence learning activities and to make flow charts. . . . Photographs enabled our students to share their experiences effectively."

Purpose and Description of Project

A group of 55 fifth graders participated in a three-day living experience at a working 18th century farm as a follow-up to their study of Colonial history. The project was multidisciplinary in that it involved not only social studies concepts but also reading, research, language, writing, photography, and even handicraft skills. It was carefully designed to enable students to perceive the history study they had just completed in a larger framework.

Activities

After brainstorming about life in the 18th century and discussing photographs as a means of documenting the project, the students developed a checklist of field trips and activities. The girls sewed colonial costumes with the help of parent volunteers, and everyone helped cook several typical Colonial foods at school to take to the farm. In social studies they examined the roles of men, women, and children, education, slavery, and religion in 18th century society, and compiled charts based on their research that showed how colonists met their basic needs for food, shelter, and clothing and the roles technology, values, customs, and religion played in their lives. In reading and language classes, they wrote compositions and researched the occupations of the times. Historical fiction and biographies gave students an even greater feeling for the period. Finally, students developed their photography skills to record the field trip and to provide photos to serve as the basis for original stories. Preliminary small-group field trips prepared the students for the three-day trip. During each of these short field trips, students recorded activities on film to share with the entire class.

Students participated in the logistical planning for the trip as they estimated the food that would be needed and planned the purchases. They also scheduled activities and chores for each student while at the farm. During the field trip, students role-played the lives of poor colonists as they slept on straw beds in linen tents, drew their own water, chopped wood, and cooked over an open pit. Workshops gave them the opportunity to make corn husk and dried apple dolls, baskets, wood carvings, and patchwork squares. They were even visited by the First Virginia Regiment, who talked to the students as if they were troops in Washington's army that were just passing by, and an "indentured servant girl," who sang songs and told stories. Each student kept a personal journal of the events as if he or she were a colonial child.

Back in the classroom, students wrote essays and poems which were combined with their drawings and photos into a magazine describing their Colonial living experience.

Materials, Resources, and Expenses

Judith Leibner and Bonnie Bracey felt the greatest resources, in addition to Turkey Run Farm and the various other museums and nature centers they visited, were the volunteers and paid professionals who shared their expertise with the students. Parents also helped plan the major trip, and six actually accompanied the group; others helped by supplying film, sewing costumes, and doing the necessary shopping.

Each student contributed $15 to cover the cost of the living experience. Turkey Run Foundation charged $4 per child, plus $35 for straw and wood. The film and processing required $50, and $30 was spent on such craft supplies as knitting needles, quill pens, and corn husks.

Outcomes and Adaptability

The activities in this project required students to develop a variety of skills—research, scientific inquiry, expository writing, role playing, cooperation, organization, and photography. The overall project was successful in that it used all these factors to produce the desired result: that students obtained greater insight into American history and culture and that they developed a framework into which they could integrate the isolated facts and concepts they had learned as they studied the late 18th century.

The Colonial living experience provided excellent motivation, and photography in particular was an important incentive as well as an excellent means of sharing experiences. Leibner and Bracey found that "for students who are 'visual' learners, photographs provided a chance to gain greater understanding."

The teachers suggest that the project could be duplicated for other areas of social history. Longer living experiences could be provided, or even no living experiences if supplementary classroom experiences were offered.

Carrollton—A Study Skills Pictorial Activity Book

Cindy Young Cox
James Lee Parker

Hillsville Intermediate School
Hillsville, Virginia

Subject: Social Studies

Grade: 5–7

"The school faculty and staff rapidly became involved in all areas of the project. Many volunteered to spend extra time training students in photography and layout, transporting students to and from interviews, doing research, and creating games."

Purpose and Description of Project

About 100 students and school personnel got caught up in Cindy Cox's and Jim Parker's effort to preserve in words and pictures the many crafts—from butter-making to outhouse-building—indigenous to their county, which is located in the foothills of the Appalachian mountains.

In the process, the students learned the techniques of photography and film processing, sharpened their research and organizational skills, and gained a new appreciation for their socio-cultural heritage. They have also produced a 168-page study guide that not only discusses and shows local crafts but provides educational exercises that will help those who use the guide to absorb its content while solving everything from word problems to math equations.

Teams of students involved in the project selected various areas of local craftwork they wanted to research in depth, were trained in photography and interviewing techniques, researched the historical and current status of the craft, and interviewed and photographed local people who retained these skills. As the interviewers wrote up what they had learned, other students developed games, puzzles, and suggested activities highlighting the information. Then facts were double-checked, and students and teachers worked together on editing and organizing the final product. The guide includes a brief history of the county, covers 20 craft areas, and provides study questions, suggestions for activities, and puzzles and games, along with answers.

While the students gained much of their information and took many photos on field trips, some craft resource people visited the school, and their presentations were videotaped for the Social Studies Department Library. Cox and Parker note that these craftspeople were as eager to share their knowledge as the students were fascinated to learn about embalming or whittling.

Students and teachers also made a slide/tape presentation describing their project and including highlights of the crafts covered in their guide. During the project, they kept the school up to date on their activities with a display case, and they also made a special presentation to the school board.

Activities

Teams went out on field trips to see and talk with the craftspeople in their own environment, whether the workshop of a cabinet-maker or the hives of a beekeeper. Members of the teams took pictures, conducted interviews, and developed activities based on the information gathered.

When interviews were completed, the students wrote, rewrote, and edited the information into articles, selected photographs to be used, and began laying out their book. They also made drawings to supplement their photos and to enliven the games and activities. The activities were designed to produce learning outcomes described in Bloom's Taxonomy—knowledge, comprehension, application, analysis, synthesis, and evaluation.

Materials, Resources, and Expenses

The foremost human resources, of course, were the community members who explained their crafts to the students. Others were school personnel and community members, who assisted with photography, layout, local history, and editing and typing the book.

Equipment and materials included 35mm and other cameras, various lenses, flash attachments; a slide projector, KR 135, Plus X 135, 126, and 110 film; tripod; video cassette recorder and camera; video cassette players; film processing chemicals; and tape recorders. Cost elements were batteries, $12; film, $78.95; processing, $40; typing, $40; and publication of book, $29.05.

Outcomes and Adaptability

Cox and Parker report that students learned about photography, layout, interviewing, and working in teams. They also found that the project helped build a positive self-image among the students; and as the project exposed them to the "how to" of local crafts, it gave the youngsters a new appreciation of local history and their own cultural heritage.

The teachers also believe that other schools can replicate the project to investigate local history and crafts, or adapt the project to other topics that students would investigate, photograph, write about, and develop skill activities around.

Rooflines Through the Lens

Merry Anderson Harsch

Williamstown Public Schools
Williamstown, Massachusetts

Subject: Social Studies

Grade: 6

"Photography was a completely new art for all of these children. Using it to document what they saw and having a product was very important to their educational experience."

Purpose and Description of Project

Merry Harsch's group of volunteers learned camera use and darkroom procedures, studied architectural styles and details, and documented their community's architectural heritage in both black-and-white prints and a color slide/tape show.

Art teacher Harsch worked closely with the school's social studies teacher, who concentrated on architectural features and history while Harsch primarily directed the photographic aspects of the project. Students each "adopted" a building—public building, private institution, or home—researched the building's history, principally through personal interviews with community resource people, and photographed the building as a whole as well as its architectural details. They shared their prints with the entire school through a bulletin board contest seeking answers to architectural questions and took their slide/tape show from classroom to classroom.

Harsch says the project strengthened the students' observation and listening skills as well as photographic skills and raised their consciousness about the town's "architectural richness, variety, and heritage."

Activities

The social studies teacher first taught the students about basic kinds of rooflines and floor plans; they then drew the lines and plans from memory. The teacher presented materials showing how elements of various architectural styles may be mixed in one building; and familiarized students with such architectural terms as dormer, finial, and lintel. Then, after instruction in the use of 35mm cameras and darkroom processes, the students each adopted a local building and researched it with local experts. In two groups, the students visited the chosen sites and participated in finding and identifying rooflines and architectural details while the adopting student took notes for use in the slide/tape show. Then that student photographed the building—taking both black-and-white and color shots of the entire building and of detail features while the other youngsters made sketches.

Each student made three prints of each of his or her black-and-white photos in the school darkroom while the color slides were processed commercially. The students got to take home one set of prints they had made, while others were used in a bulletin board contest to test other students' knowledge. Winners were given the opportunity to take pictures and work in the darkroom.

Students then used their on-site notes and research to develop a taped narration for their slides. The show was shared with other classes and is being integrated into the school's social studies unit.

Materials, Resources, and Expenses

Human resources included the social studies teacher, community experts on various buildings, and homeowners who supplied information and allowed their homes to be photographed. Students used four 35mm cameras—two Ricoh, a Canon, and a Chinon—as well as print and slide film. Since the school darkroom and supplies were available, total cost was about $200—including purchase of the Ricoh camera, audio tapes, processing of the slides, and purchase of film.

Outcomes and Adaptability

Harsch says that her students learned about photography, increased their architectural knowledge, and became more aware and insightful observers of their architectural and historical environment. She was also pleased at the enthusiasm generated among the students by the experience and the considerable pride they took in their photographic products.

Since every community has historically significant buildings, Harsch believes that the project could be carried out anywhere. And, she adds that while she had intended the unit for academically talented students, the group of volunteers turned out to be a mixed group and all were equally enthusiastic.

Japanese Gardening—A Style Shaped by Its Culture and How It Contrasts with Western Style Gardening

Edward A. Dafflitto

Keeven Elementary School
St. Louis, Missouri

Subject: Social Studies

Grade: 6

"The students were delighted when they got their photographs back to find that they had successfully pinpointed in their pictures the elements that they were trying to show."

Purpose and Description of Project

Edward Dafflitto's project enabled students to identify the symbolic elements of Japanese gardening and the religions from which these symbols and elements were derived. Students were to prepare photojournals that compared Japanese and Western gardening styles and that served as a basis for student lectures to other classes. Among the skills Dafflitto sought to strengthen were observing, classifying, organizing, and comparing/contrasting.

Activities

Pre-photographic activities included group meetings to explain the project and to study and discuss Japanese culture and religions. Following extended discussion of the symbolism in Japanese gardens and how the elements compared with those of Western gardens, each student designed a Japanese garden and explained it to the class. Students split into groups; each group combined the individual elements into a group garden design which was actually prepared in model form and presented to the class. They also explored Haiku poetry and wrote short essays on Japanese style. Then each student submitted for approval a list of the 20 elements she or he intended to photograph. Technical preparation included explanation of basic photographic techniques and practice picture-taking without film in the cameras.

The class spent two hours touring and photographing plantings at the Missouri Botanical Gardens—one hour in the Japanese Garden and one hour on their own. Students categorized their finished photos and constructed photojournals that visually demonstrated the difference between the two styles. Using the labeled photos in the journal, each student then developed and made a short presentation to students not involved in the project. To evaluate student understanding, Dafflitto used quizzes and worksheets, and reviewed the essays, garden plans, and photojournals.

Materials, Resources, and Expenses

Dafflitto provided a variety of written resources on basic photography and Japan, its culture, and its gardening style. Information and a narrated slide show from the Missouri Botanical Garden Education department supplemented these resources.

Students used "non-instant-developing" cameras so they would carefully plan each photo, not just "point and shoot" and hope they would get something usable. Each student was allowed one roll of color film. The cost of buying and developing the film was $8 to $12 per student.

Outcomes and Adaptability

Dafflitto found that his students were successful in orally and visually demonstrating their awareness of the contrasts between the two types of gardens. In addition to student improvement in the skill areas he had selected, Dafflitto noted that the class gained a deeper understanding of Japanese culture, an increased appreciation of nature and an awareness of aesthetics, and an enjoyment from their newly learned photographic skills. The amount of time spent in preparing the students to take pictures was well worth it. They took very few unusable photos. Photos proved to have a great impact on learning. Says Dafflitto, "Those students who were involved in the project gained a much deeper understanding of what was being taught after getting their pictures back."

According to Dafflitto, this comparing/contrasting project could be adapted, for example, for a science unit on plants that would utilize photos to contrast plants in the wild with those in landscaped settings.

Worth a Thousand Words—The Photography Essay

Kathleen H. Hartwig

Ladue Junior High School
St. Louis, Missouri

Subject: Social Studies/Photography

Grade: 7-8 (Gifted Education)

"A camera brings out the hidden personality behind people, places, projects, and events."

Purpose and Description of Project

One of the objectives of the school's program for the intellectually gifted was to teach creative problem-solving methods and to have students apply these skills in solving a "real life" problem. One such problem at this school was a lack of understanding of giftedness among the other students and staff, and a lack of knowledge of the value and interrelationships of existing programs on the part of the gifted. To facilitate mutual understanding and knowledge, the 10 gifted students who participated in the project decided to create photographic essays on different facets of the total school program.

Activities

After students were introduced to the problem, they were told to act as a public relations firm representing the school district and to use photography to develop positive attitudes toward all programs. Students brainstormed alternative methods to use photography and selected the photographic essay. Each student worked on one particular program—math, language arts, science, social studies, physical education, or one of three other categories—and for the spring open house, the essays were combined into a display.

Students prepared questions and conducted interviews with the principal, 10 teachers, and a high school photography teacher and one of his students. The teachers were interviewed for about half an hour each on their curriculum, feelings, and possible topics for the essays.

The students watched four filmstrips on taking pictures and were given a demonstration on the 35mm camera and how to use it before they actually photographed the topics of the essays. Each student took 10 to 20 photos that highlighted happenings within each program. Only one student experimented with developing his own photos and reported his experiences to the group. Students then captioned their photos and assembled the display. The essays were evaluted by Hartwig, the resource persons, and the students themselves.

Materials, Resources, and Expenses

Four 35mm cameras (two of which were loaned) and a variety of lenses were used. The total expenses for black-and-white and color film, developing, and blow-ups and crops came to $135. The 10 teachers interviewed served as core resource persons while the principal, the high school photography instructor and his student, and the librarian contributed time and guidance.

Outcomes and Adaptability

Students strengthened their problem-solving skills as they defined the problem, selected the best solution, organized information, and implemented the project. As they worked together in units, the cooperation and communication that took place stimulated creative ideas, and the quality of their work was raised by the constant peer evaluation. "Most important," says Hartwig, "students learned to direct their own learning and think for themselves." In comparing the results wth the original goal, Hartwig found, "newly developed attitudes about the 'gifted,' and . . . newly understood concepts by the gifted about 'everything else.'"

Hartwig sees any number of variations for the project, from describing special programs (art, music) to highlighting special happenings in any curriculum. In a school situation, sufficient resource persons who could contribute an hour or two of their time for interviews and evaluations would almost always be available. She suggested that her project is even feasible with elementary students if simple-to-operate cameras are available.

A Foundation for Participation

Robert S. Young

Oaklea Middle School
Junction City, Oregon

Subject: Social Studies

Grade: 8

"Photography was very useful because the photographs provided a source of information not commonly used in classrooms."

Purpose and Description of Project

Robert Young's project was intended to encourage good citizenship by offering the students a chance to gather the information needed to make intelligent decisions. His students examined the basic structure of their local school district, using photos taken of the district leaders during their daily activities. Through photos, interviews, organization flowcharts, and essays, the students were to become aware of how to gain access to the school district's decision-making process.

Activities

Project activities fell into two categories: photographing school district leaders and utilizing those photos in the social studies class. Five students who had taken photography courses and knew how to develop and print photos were selected as photographers. Each was asked to photograph district leaders—e.g., superintendent, administrative assistant, middle school principal and vice-principal, and school board member—during their routine duties. One of the primary challenges was to portray their subjects accurately despite a variety of lighting situations and physically limiting conditions. The five students selected their 10 best negatives to enlarge and dry-mount for use in class.

All students now brainstormed about which leaders help decide the budget, hiring and firing of staff, and curriculum. They analyzed the photographs and discussed the general job responsibilities of each leader. This was followed by visits from the district leaders who explained their responsibilities and job requirements. Students used their new-found information to role-play these leaders in decision-making situations. To conclude the project, students made a flowchart that identified the district leaders, and their positions and major responsibilities, and wrote an essay on how they would go about making a change they felt was necessary within the district.

Materials, Resources, and Expenses

The school district leaders agreed to be photographed through a full working day and to be interviewed, thus playing an essential role. The five student photographers used a 35-mm camera, one roll of 36-exposure black-and-white film, basic processing and printing supplies and equipment, and a dry-mount press and supplies. Since photography was part of the school's curriculum, a darkroom was available and the only expenses were for film, paper, chemicals, and mounting supplies.

Outcomes and Adaptability

The students' flowcharts and essays indicated that most students had achieved the project's goals. Young also found it apparent from class discussions that students had become more interested in the district's decision-making process. They had come to view decisions in human terms as they learned how the school district functioned and became familiar with those whose decisions affected their education. Young found photography to be "highly motivating" in bringing about these results.

Decision making is a part of every organization which makes the project adaptable to any school setting and group size. The sophistication of the material could be adjusted to all grade levels—e.g., a greater emphasis on building personnel for lower grades, and on the district as a whole for upper grades.

Cultural Awareness

Ronald C. Levine

Worcester East Middle School
Worcester, Massachusetts

Subject: Social Studies

Grade: 8

". . . in lieu of a standard exam, the class was assigned to take a series of 24 photographs, through which each student would demonstrate his/her grasp of the subject matter."

Purpose and Description of Project

Ronald Levine's project was designed as an introduction to awareness of cultures. Students were to study different aspects of world cultures and complete a photographic essay that demonstrated understanding of the subject. His goals were to develop organizational skills, create student-parent involvement in the learning process, and allow students to use the camera as a means of expressing an understanding of cultures and of expressing their own creativity.

Activities

First, the class lessons helped the students define the term "culture." Subsequent lectures and discussions led to understanding the concepts of norm, fashion, environment, status and corresponding status symbol, ceremony, etiquette, class structure, nuclear family, extended family, status-relation, generation gap, and indoctrination. Small student groups discussed these terms in relation to their own lives and culture, and also how they had themselves become products of acculturation.

The students were then given one week to take pictures of people and objects in their lives that best exemplified the meanings of the above terms. During that time students discussed particular problems in small peer groups and with Levine.

Once the photos were taken and developed, students arranged their photos on posterboard in a manner that best demonstrated their individual culture. Each student explained why she or he took each photo, which became a positive experience in terms of peer relationships.

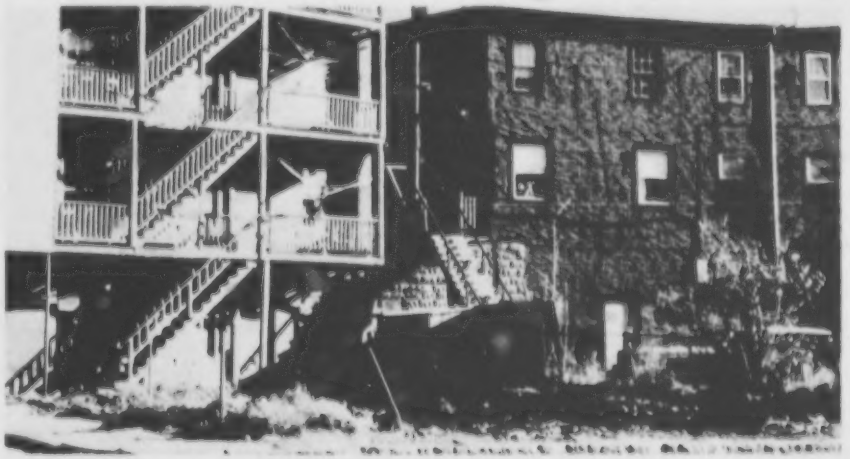
Materials, Resources, and Expenses

Each student's entire family became a valuable resource which he or she utilized to realize a successful outcome. Students also used cameras belonging to the school and to individual students, and 24-exposure color film. Thus, project costs were kept to a minimum.

Outcomes and Adaptability

According to Levine, "The process of thinking and choosing the examples that would best fulfill their own interpretation of such words as 'ceremony,' 'family,' and 'status' made this project extremely valuable in the process of learning about themselves, their relationships, and their culture." Students were motivated throughout the lecture portions of the project because they knew they would have to make practical use of the information. They showed excellent thought and organizational skills in selecting and arranging their photos. But for Levine, the most rewarding aspect was the parent-child relationship that developed as the parents became an integral part of their child's educational process.

Levine states that because the project is so simple and because each student is, in effect, defining his or her own culture, the project is adaptable to any setting in any classroom or community.



Will Photographs Increase Time on Task in Adaptive Physical Education?

JoAnn K. Hill
Judy K. Phillips

Polston Elementary School
Alamosa, Colorado

Subject: Special Education

Grade: K–1

"We showed the children photographs of themselves doing activities that used to be difficult and now are easier. They beamed with pleasure, knowing that they had worked hard and come a long way."

Purpose and Description of Project

JoAnn Hill and Judy Phillips used photographs to demonstrate the physical education activities required for each of their physically limited or handicapped students. As a result, the children not only benefited from more time on task but performed their exercises more consistently and progressed faster.

The children involved in this project were provided with individual plans of physical and occupational therapy to help them deal with developmental delays, physical disabilities such as cerebral palsy or spina bifida, or injuries and surgeries. Working together, Hill, a physical education teacher, and Phillips, a special education teacher, designed individual activities sheets for each child in consultation with physical and occupational therapists.

Hill and Phillips found that photographs were the answer. They also say the photos helped with "quality control" and were a great motivator for the children.

Activities

The major project activities were:

The teachers set up a master file of activity sheets for each child, with photos of the child doing each activity glued to the appropriate sheets and the sheets color-coded by goal areas (eye-motor skills, balance, etc.).

The teachers also took head shots of the support staff and the children for a bulletin board. It let adults and children immediately know with whom they were to work each day.

The teachers also prepared color slide presentations on their adaptive physical education activities. The show, presented at a local college and in several nearby school districts, incorporated both the photo-activity sheets and slides demonstrating the adaptive program. For the local parent-teacher organization, the teachers showed slides illustrating both the program and other school projects.

The individual photo-activity sheets will now follow the children as they advance in school, to be added to or adapted as needed. Copies of the sheets will also be used with other children who need to perform the same exercises—either in lieu of new photos or until new ones can be taken.

Materials, Resources, and Expenses

Primary human resources were physical and occupational therapists and the large support staff that carried on much of the one-to-one work with the children.

The teachers used personal cameras and also purchased one. These were a Pentax 1000, a Minolta XG-1, a Bell and Howell EZ-35, and a Ricoh AF-5, with various lenses and filters. Film used included eight rolls of 20-exposure Kodak Tri-X Pan, six rolls of Kodacolor 400, and six rolls of 36-exposure Ektachrome 400 for, respectively, black-and-white prints, color prints, and color slides. A high school journalism class developed and printed much of the black-and-white film, and when the students became too busy, the school district picked up most commercial processing costs and film.

Outcomes and Adaptability

Experiments assessed the amount of time spent by support staff asking questions before and after the introduction of photo-activity sheets. Sixteen new activities were written up—eight with photos, eight without—and the principal counted and timed interruptions as each set was carried out. The result was an astonishing drop from 65 interruptions and 20 minutes of time lost down to six interruptions and less than one minute lost.

The teachers also found that little preparation time had to be spent training new helpers, that there were fewer discipline problems stemming from children sitting idle, and that the children were motivated by seeing their photographs. The students also showed significant improvements according to a motor assessment instrument and other measures.

Hill and Phillips point out that their project could be adapted to "any program in which a coordinator plans the activity and must rely on other, sometimes untrained or inexperienced individuals to carry out the lessons."

Visualarticulation

Thomas G. Schultz

Lincoln Elementary School
Torrington, Wyoming

Subject: Special Education/Speech

Grade: K-3

"It was amazing that two trainable mentally retarded students were able to understand the instructions, manipulate the camera, and take (all by themsleves) pictures of each other. They were quite proud and happy at the challenge."

Purpose and Description of Project

The camera helped Thomas Schultz's speech therapy students become "aware of not only how good speech sounds but how good speech looks," as they studied pictures of a teacher saying various sounds and then photographed each other trying to make the same sounds.

Teacher and students then used the sets of photos—of both model and children—to study how the tongue, teeth, lips, jaw, and facial features (articulators) looked as the different sounds were made correctly and incorrectly. A mirror was used to supplement the photographs, but Schultz stresses that the camera was the real key to the project because "the pictures froze features that are fleeting when one looks into a mirror" and gave the children "immediate feedback." Further, he says, a high level of motivation was maintained because the children were excited at being able to use the camera and take their photos home to show their parents.

Activities

Schultz began by photographing a popular kindergarten teacher making these sounds: F, TH, W, R, L, and S. The students then studied the photos and practiced identifying each sound until they understood how each sound looked on the teacher's face.

The children then took each other's pictures and watched as the pictures developed. Next, they tried to identify what sounds they were making in the photos, using a mirror to watch their faces as they said the sounds they thought were pictured.

After working with their own photos, the children also practiced identifying sounds other students were saying in their pictures and then tried to match up their own photos with those of the teacher model.

Materials, Resources, and Expenses

The project's human resource was the teacher model who posed for control photos. Equipment and supplies included a Kodak Colorburst 250 Instant camera, two double packages and one single package of HS144 Kodamatic Trimprint Instant color film, and a large unbreakable mirror. Primary costs were for the camera ($79.80), film ($44), and mirror ($65).

Outcomes and Adaptability

Schultz reports that the children "were able to identify correct and incorrect sounds much faster using Visualarticulation. They could see what they were doing wrong and made a change. In fact, he notes, the project was "far more successful than anticipated" because the exercises made the students "take a closer look at themselves, helped them retain a mental image of how correct sounds should look, and improved their ability to concentrate on what they were doing right and what they had to change in order to say their target sounds."

Schultz believes that his project would be valuable for the regular classroom as well as in speech therapy classes and also for older children. He points out that about 17 percent of all school-age children have speech and vocal inadequacies and that "faulty speech patterns can be a deterrent in the areas of reading, writing, spelling, and development of a positive self-image."

Slide into Achievement

Yvonne Smith Hansen

Moroni Elementary School
Moroni, Utah

Subject: Special Education

Grade: K–5

"I have appreciated the insights that . . . photography has given me about the young people that I work with each day. It has helped me to make better plans for their educational programs."

Purpose and Description of Project

Yvonne Hansen combined weekly photography lessons, demonstrations, guest speakers, and a field trip with a "hands-on" learning experience using cameras and photography. The result was three student-prepared slide presentations: "Computers in the Classroom," "School Safety," and "Welcome to the Resource and Chapter 1 Classroom." Hansen set very specific goals for each individual—e.g., staying on task 100% of the time during a 20-minute study period and computing in 20 minutes 16 photo-related math problems with 90% accuracy.

Activities

Hansen used the lesson plans from the 4-H Photography Manual for her weekly camera sessions. After students learned to handle and care for the camera, they were shown how to take close-ups and people pictures, and to use lighting. A 13-year-old 4-H member showed the class how a camera works and how they could make a pinhole camera—"it was encouraging to my students to see a person close to their own age have fun and successful experiences with photogrpahy." They also were shown how to make "trick" pictures and how to prepare their photo albums with their favorite photos, captions, and stories. Other highlights of the project were a visit from a newspaper photographer, who discussed photography in relation to her reporting work, demonstrated her 35mm camera, and used her own slides of a trip to Thailand to illustrate the "fun" side of photography. There was a visit to a local camera shop where the owner demonstrated the camera.

All this helped the students learn to evaluate the quality of their slides as they sequenced them for the three shows. Hansen gave them practice in written language skills, idea organization, and oral speaking as they planned and narrated their own slide productions.

Finally, students selected their favorite or best photo to enter in the photo contest held during the last week of school. Each was judged a winner and received community-donated prizes.

Materials, Resources, and Expenses

The contributions of the local newspaper photographer, 4-H member, and camera store owner enriched the program. Hansen found her principal and fellow teachers enthusiastic and cooperative as they showed interest in the students' work and arranged their schedules so the students could leave class for demonstrations.

Purchased photography and audio supplies included 2 pocket cameras, 20 cartridges of 12-exposure color print film, 10 cartridges of 20-exposure color slide film, and blank tapes for the narration. The school provided the carousel slide projector and tape recorder. For $6.00 Hansen ordered 4-H photography publications for the class.

Outcomes and Adaptability

In relation to learning goals, students learned how to operate the camera and audiovisual equipment. They learned how to evaluate the quality of a photo and what options photography offers as a hobby as well as a career. Preparation and presentation of the slide shows and photo albums called for their use of organizing, writing, and speaking skills. Drills on photography terms increased students' vocabulary, which was reinforced with math problems.

Social skills improved throughout the project as students listened to speakers, took pictures of friends, presented the slide shows to fellow students, and participated in the photo contest. Says Hansen, the "most welcome outcome was the social interaction that occurred when a Resource student was in possession of the camera. After analyzing the situation, I realized that possession of the pocket camera meant positive power." The special education students became the center of attention as peers sought to be the subject of the next photo. This attention did not end when the film was gone. Hansen's students had acquired new friends and new self-confidence as others realized their abilities.

Multi-disciplinary Instructional Photography

Marianne Tierney

Our Lady of Grace School
Pittsburgh, Pennsylvania

Subject: Special Eduation

Grade: K–8

"We learned to use our 'mind's eye' in many subjects to develop imagery and thinking skills. We developed a greater appreciation for pictures, not only for their information but also for their feelings."

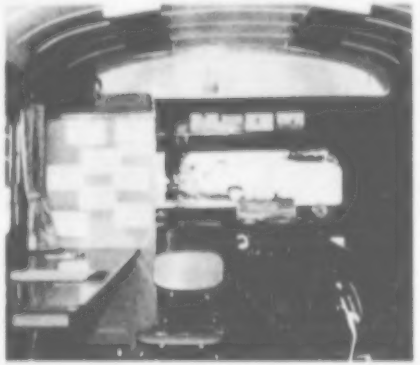
Purpose and Description of Project

Marianne Tierney, a teacher with the Multi-disciplinary Instruction Program (MIP) for underachieving students in nonpublic schools in the Allegheny area, developed creative ways to use photography to help students with learning difficulties gain academic and photographic skills. She intended to enrich her instructional activities beyond "most remedial programs [that] hardly tap such rich resourcefulness inherent in children who struggle with bare facts in school." As a means of achieving this goal, she organized an after-school photography club at one of the schools she regularly traveled to by van where she worked with students who were "near borderline and exhibited many characteristics of Learning Disabled populations." Her Multi-disciplinary Instructional Photography was offered to students who were interested in photography, who could attend weekly meetings, and who were caught up with their school work and wanted to do a few outside projects. After brief interviews, 30 students ("regular" students as well as Tierney's) were chosen to participate.

Activities

The club's activities were numerous and varied, but generally fell into three categories: (1) learning technical aspects of photography, light, and film; (2) completing major projects such as biographical sketches of teachers, sequence activities, and language arts projects; and (3) spin-off projects on, for example, writing bibliographies, creating teaching tools, and developing a slide presentation on the MIP van and its program.

At their meetings, students shared their favorite recent photos, demonstrated how to operate their cameras, brought written resources for discussion, and received technical instruction in photography, while carrying out their projects independently. They photographed numerous school activities and a few even worked with the yearbook staff. The central focus of all the individual activities was to



let the students "explore creative ideas even if they did not seem totally functional."

Materials, Resources, and Expenses

The school's teachers contributed ideas and offered to be interviewed for the biographical sketch projects. The school library provided references, as well as a meeting area for the club, and the school loaned the slide projector for the MIP presentation. The club worked with 6 disc cameras, 10 Instamatics, 6 35mm cameras, and 2 Polaroids—one owned by the school and the others on loan—so the students had to learn how to load and operate each type. Students provided film and developed their own photos for about the first four weeks. This taught them to shoot conservatively when they realized the expense involved. By the end of four weeks Tierney knew who was seriously interested in the club and purchased film accordingly. Students helped plan an even distribution of the film and developing services.

Outcomes and Adaptability

Evaluation of the students' efforts took place at the weekly meetings and Tierney noted that the products demonstrated their "'photographic eye,' a sense of judgment, and the ability to recognize and replicate characteristics." Tierney was most pleased that students began to realize that subjects and learnings overlap, that one subject does not stop before another one can start.

As time went on, students left the club to participate in other school activities. Of the original number, "12 remained true troopers," and Tierney was surprised to find that most of these were "her" special students. They took great pride in seeing their work displayed and used around the school. While they were working to achieve goals related to understanding photography, taking good quality photos, and producing exhibits, portraits, slide shows, and visual aids, they uncovered skills and confidence they didn't know they had.

Knowing Survival Skills

Martha Lynch

Muncie Elementary School
Kansas City, Kansas

Subject: Special Education

Grade: 1–3

". . . we were able to determine that one child has unusual ability hidden under a severe language handicap . . . . By demonstrating the use of photographs and labels, he was also able to convince a school psychologist, principal, social worker and educational coordinator of his ability."

Purpose and Description of Project

Because safety is a priority in the classroom, this project was designed to increase the handicapped students' knowledge of safety procedures they would need to follow at school and in their daily lives. Photos that were taken in conjunction with the safety training unit were then used in class to strengthen oral language, vocabulary, and reading skills. Most of the 6- to 8-year-old students had some type of language handicap.

Activities

The first stage involved trips to all of the students' homes where the educational coordinator for the trainable mentally handicapped photographed family members individually and as a group, the home, and the telephone. Because transportation and scheduling visits proved to be a problem, the students were not able to go along on all these visits. However, they all visited the fire station where pictures were taken of the fire truck, police car, and Care unit.

When the photos were developed, they became the basis of short learning activities. A bilingual program was also developed for her one Spanish-speaking student. The students were assigned to short tasks according to skill level, which made individualization easy. Since the tasks were short, Lynch could involve individuals or small groups of three or four students, thus providing ample opportunities for all to participate.

Among the many activities were these: matching classmates' pictures with the actual persons, matching printed first and last names with pictures, identifying parents and other family members in family group pictures, matching printed family first names with pictures, selecting their own homes from a group of pictures, selecting their addresses to place on their home photos, recognizing their own telephones and placing the correct telephone numbers on the phone pictures, stating their phone number on request, identifying the three types of emergency vehicles they had seen, learning to dial "911" on request, using role-playing to learn to answer the question "What's your emergency?" and sorting the photos of people into categories—e.g., mothers and fathers, men and women, boys and girls.

Materials, Resources, and Expenses

"The families themselves were the main resource for the project along with the emergency vehicles." Because the camera was on hand and most materials were provided, the major expenses were three rolls of film ($5.25), developing and printing the photos ($27), and gas for the trips ($30). All the photos were encased in plastic folders ($12) with a tagboard backing for protection. Later these photo folders were fastened together with a front and back cover to make the student booklets.

While the entire school was supportive, several staff members were actually involved in the project: the educational coordinator, the English as a Second Language (ESL) consultant, and the media center staff.

Outcomes and Adaptability

Each student was given a pretest at the beginning of the training to see what skills he or she could perform. The list that eventually grew to 104 skills became the basis for the curriculum. Lynch was able to identify a student whose unusual ability was previously hidden under a severe language handicap. The photographs proved to be a highly motivating factor, and the students who usually had short attention spans were very attentive during the training sessions so they wouldn't miss their turns to respond.

Lynch finds her type of curricular activities minimal in cost, easily adaptable to many areas of special education, and very suitable for kindergarteners. The program also has potential for use to improve written language skills.

Using Photography with Sentence Structure

Cathy Mackey Davis

Parkwood Elementary School
Jeffersonville, Indiana

Subject: Special Education

Grade: 3–5

"The combined use of the camera and the computer motivated students who previously had negative feelings about language arts."

Purpose and Description of Project

Cathy Davis' students photographed things, people, places, and actions to help them learn to identify nouns and verbs and then used the photographs in learning activities involving how to categorize nouns and verbs, compose sentences, and diagram simple sentences. In addition to learning the principles of sentence structure, the students learned such photographic procedures as how to load a camera, center a picture, use correct lighting, and select interesting subjects.

Davis notes that "for some of these learning disabled children, reading, handwriting, and sentence composition were extremely difficult tasks. However, instead of the usual grumbling about such assignments, they looked forward to any task dealing with the camera project."

The teacher adds that the unexpected outcomes included the degree of photographic skill developed by the children, the pride they took in displaying their work on the school bulletin board, and the modification of attitudes of other students and teachers toward the special education students.

Activities

Davis covered six objectives during the children's time in the special education resource room over a two-month period. The children learned camera use and took photos throughout this time all around the school—in different classes, the school office, cafeteria, library, and gym and of such special events as the first-grade play and the visit of a helicopter from a local hospital.

Lesson 1—The children learned to define a noun, give examples of a "thing" noun orally, classify nouns according to where things are found (at school, home, outside), photograph three thing nouns, and write sentences about things shown in the photos.

Lessons 2 and 3—repeated above steps for nouns naming persons and places.

Lesson 4—Students categorized their photos of nouns as things, persons, or places, circled nouns in the reading lesson, and wrote nouns described in the pictures.

Lesson 5—Students learned the definition of a verb, gave oral examples, photographed three action verbs, circled verbs in the reading lesson, and identified verbs as present or past tense. They also used a computer with software on verbs for individualized instruction, acted out verbs with their bodies, and wrote sentences about the verbs demonstrated in their photos.

Lesson 6—Students categorized their photos according to whether they showed nouns or verbs, identified nouns and verbs in sentences. Each week throughout the project, a child's work and photos were displayed on a bulletin board by the school's main entrance with a heading saying, "Spotlight on (child's name)."

Materials, Resources, and Expenses

In addition to the school's Apple II computer and various films, equipment and materials used in the project were the teacher's Kodak Tele-Ektra 1 camera, with Kodak film and flashbars; the school's Polaroid Land Instantatic camera, which contained an electronic flash and used Polaroid film; photo albums; dictionaries for the students; and computer software on verbs. Davis estimates cost at $110.

Outcomes and Adaptability

Davis says she would recommend this curriculum to other teachers because "it stimulated students' interest, accomplished mastery of academic objectives, fostered self-pride among the students, and provided a positive public relations vehicle for special education students throughout the school. The children were also exposed to a new form of self-expression: the camera."

She adds that the program would also be suitable for regular third-, fourth-, and fifth-grade language arts classes and for educable mentally handicapped and learning disabled students on a junior high school level.

Fort Morgan, Colorado—100 Years of Progress and Promise

Roth Tollin

Ft. Morgan Junior High School
Ft. Morgan, Colorado

Subject: Special Education

Grade: 8–9

"For hard to motivate students who are often turned-off to learning, who often engage in inappropriate behaviors, and who have learning disabilities, using photography provided an opportunity for them to feel successful in a learning situation."

Purpose and Description of Project

The group of 10 eighth- and ninth-graders who completed this project spent one to three hours a day in the school's Resource Room program for students with learning disabilities or "significant identifiable emotional or behavior disorders." In general, these students were easily distracted, had a history of failure and truancy when they were in the regular academic curriculum, and had very low self-esteem. In connection with Fort Morgan's centennial year, Ruth Tollin devised a project that would not only teach the students community history but also address their emotional and behavioral problems.

Activities

Students participated in numerous activities two days a week over 3½ months. They learned and practiced interviewing skills by role-playing, and a local newspaper reporter also provided suggestions. The students utilized these techniques while discussing the history of Fort Morgan with senior citizens who came to the school and with those whom they visited in the local nursing home. Other outside resource persons who visited with the class were a local amateur archeologist, a cattle buyer from the town's beef processing plant, a long-time teacher and local historian, and a member of the local museum's staff who discussed the old fort. Throughout the project, students periodically watched movies on aspects of the area's history.

The local media specialist discussed how to create a slide show and gave tips on taking still photos. For two class periods students discussed photography and photographic composition, and watched a demonstration of camera use. Students also practiced taking slides without film. They then took photography-oriented field trips to the local museum, the Indian museum, the town's beef processing plant, a large modern farm, some nearby sod houses, Fort Morgan, Centennial Village in Greeley, and Pawnee Buttes. After the slides were completed, the students wrote and recorded their script, with background music, and synchronized the final presentation which was shown to students and faculty, the nursing home residents, and the resource persons at Fort Morgan Museum.

Materials, Resources, and Expenses

In addition to the resource persons mentioned above, the vice-principal recorded the taped narration, and the school psychologist offered support and loaned Tollin's students audio equipment.

The students used a school-owned Nikon 35mm automatic camera and two student-owned Kodak Instamatics for the slides; a Kodak Disc camera was used for the prints. They used 10 rolls each of color slide and print film, 4 flash bar units, and 5 Kodak discs. Additional equipment included: 2 cassette tape recorders, 10 cassette tapes, a microphone, and a carousel projector and slide tray. The total cost including film and processing, a scrapbook, and cassette tapes was $215.

Outcomes and Adaptability

Pre- and post-project scores on the *Piers-Harris Children's Self-Concept Scale* indicated that 5 of the 7 students tested had increased self-esteem. Tollin also noted increased knowledge of local history (based on an informal discussion of the subject between Tollin and the individual students), improved slide-taking skills, and improved attendance.

Among the important affective outcomes were the open acceptance of the students by the senior citizens and the sharing relationships that developed as these students were positively accepted. The students took pride in their successful completion of the project and in the positive feedback they received from the groups who saw it.

Tollin advises that the project can be replicated by teachers at any level and particularly recommends it to those working with hard-to-reach students who have had problems with traditional teaching methods and the regular curriculum, who have difficulty relating to others, or who have other affective needs.

Looking at Our Courses

Deborah Dudzak

Hopatcong High School
Hopatcong, New Jersey

Subject: Special Education

Grade: 9-12

"Students were initially afraid of the camera. After taking a few pictures, they became less intimidated. . . . Using photographs of familiar places and people seemed to make it easier and more fun for the group."

Purpose and Description of Project

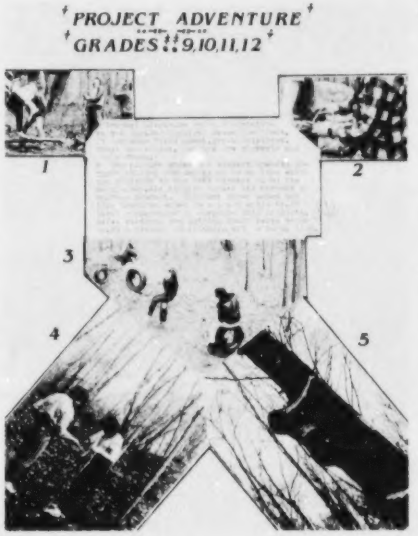
Working as a group on the project, Deborah Dudzak's classified, perceptually impaired students created a booklet using text and photographs to describe the courses offered at their high school. In addition to teaching photography and design skills, Dudzak sought to improve her students' writing skills through application to a concrete product, to allow them to contribute to the project in their own areas of strength, and to familiarize them with their school and what it offered.

Activities

First, students discussed the existing course studies booklet to see how the entire booklet, and particularly its visual presentation, could be improved to make it more interesting, eye-catching, and informative. A pretest of the students' knowledge of courses and requirements at the school was followed by a discussion of the various courses and an introduction to the project including use of the camera, group and individual possibilities for contribution, and components of the individual products. With some group assistance, each student listed ideas for photos to illustrate her or his topic. A three-day introduction to photography and the use of the camera was given by Dudzak and a Special Education teacher. The students needed approximately three days to complete their photos. They used magazine and newspaper ads as the basis for a discussion of design concepts—i.e., balance, lettering, contrast, and simplicity. Then each student prepared a rough layout. Individual writing of the actual text was assisted by group input. Then the students spent five days pasting up their final page layouts using actual photos, typing their narrations, and adding lettering and any finishing details.

Materials, Resources, and Expenses

School resource persons included the audiovisual coordinator; the art teacher; and the Special Education teacher.



To take the photographs, students brought their own cameras or borrowed ones from Dudzak and the school. The 400 ASA black-and-white film they got from the Audiovisual Department was commercially processed. To prepare the booklet pages, Dudzak obtained press-on letters, stencils, rulers, construction paper, markers, glue, and tape from the Art Department.

Outcomes and Adaptability

A very important aspect of the project, according to Dudzak, was that each student could contribute to the group project in her or his areas of strength and get assistance from classmates in areas of weakness. Getting started was somewhat difficult. The students had trouble dealing with new ideas and materials. Taking and using photos of familiar places and people seemed to make their work easier and more enjoyable. As they worked together on their layouts, sharing ideas for design and narration, the students showed even more interest and enthusiasm.

The completed photos, informal discussions, and written quizzes showed increased knowledge of the camera. The final projects were well planned, mechanically well done, and complete, which indicated they understood and could apply design, layout, and paste-up techniques. Student writing skills had also shown definite improvement. "Pride [among the students] was definitely justified by the caliber of the completed projects," says Dudzak.

Dudzak's program consciously combined visual, verbal, manipulative, and written aspects in a concrete presentation, which made it especially useful with her perceptually impaired students who needed as many channels of learning as possible. However, she feels that by altering the emphasis in terms of design, photography, written narrative, or subject, the project could be used with other courses and at other levels.

Photography for Language Use and Awareness

David Wiener

Elizabeth High School
Dwyer House
Elizabeth, New Jersey

Subject: Special Education/English

Grade: 10-12

"The camera put special education students in a positive, prideful spotlight, a rare occurrence for them. Whereas before they had been embarrassed to be in the special ed room, they now brought friends into some of our activities."

Purpose and Description of Project

David Wiener and his 16 special education students created slide/tape shows about people and activities the youngsters were familiar with and interested in. In the process, the students gained self-confidence and pride in their accomplishments; increased their communications skills; came to better understand connections between visual, written, and spoken components of language; and developed more positive attitudes toward academic assignments as a result of their successes.

The students made story boards and took photographs for slides to illustrate stories or "how to" demonstrations and wrote and recorded scripts to accompany their slides. Working individually and in groups, they completed slide/tape programs on such topics as "How To Breakdance," "Bubble Gum Blowing and Tricks," "Playing the Guitar," "The Strange Elevator," and "The Greedy Man."

Wiener says that while not all students participated in all activities—and four only watched—"excitement and involvement were expressed at one time or another by all students, including those not participating directly. The photographic process, with its picture results, keeps motivation strong and satisfaction high."

Activities

Activities occurred in four main sequences, with students working individually or in groups and according to individual ability level.

Wiener explained the use of the 35mm camera, after which students practiced operating it and then planned and took three or four pictures to demonstrate their understanding. The students wrote sentences about each activity shown in their photos and taped the written material to produce an audiovisual product.

Students wrote about the steps involved in some activity of interest to them (dance steps, how to throw a ball, etc.), took four to six photos illustrating the text, and then taped the narration.

Students took slides of people in the school and then, through class discussion, made up a story about the people photographed.

Students wrote stories, then took slides to illustrate them, recorded the stories, and coordinated the audiotape with the slides. The stories were read aloud to the class and made available to other classes.

Materials, Resources, and Expenses

School personnel provided assistance with photocopying and equipment needed, as well as with makeup for student "actors." Materials and equipment included 35mm camera and flash, slide film, instant slide film and processor, slide projector, cassette recorder and tapes, and story board forms. Expenditures of $220 went for regular and instant slide film, slide processor, and regular slide processing.

Outcomes and Adaptability

By writing about, photographing, and reading about the same topics, according to Wiener, the students came to better understand the relationships among various types of communication. Also, long after the project was completed, being reminded of their success helped encourage the students to proceed with regular academic assignments. The youngsters got the satisfaction of creative expression and were proud enough of their work to involve their friends, says the teacher, who also notes that they learned to work together and were proud of being able to help one another. The pictures were enough of a motivator that the students developed the patience to wait for the processing of regular slides after the instant slide film ran out—in other words, the pictures were worth waiting for.

Wiener believes that although his project was designed for high school special education students, "it is applicable to virtually any subject area or grade. For example, historical events could be enacted and photographed with accompanying text, as could art projects and science experiments."

The Me Book

Moira A. Fallon

Field Club School
Omaha, Nebraska

Subject: Intellectual Stimulation

Grade: Special Education:
Preschool/Elementary

". . . .the most beautiful asset of the photo album proved to be its adaptability to children of all early developmental stages, all ethnic or social groupings, and of any handicapping condition."

Purpose and Description of Project

The "Me Book" is an individualized photographic album that Moira Fallon uses to help very young or functionally impaired children begin to understand and communicate basic concepts through symbols. In creating such an album for a child, Fallon works in close concert with the child's parents, who help choose people and objects from the child's environment that will stimulate recognition, identification, and naming skills in the child.

The general photograhic categories include: self and family, toys, functional–cup, chair, comb, etc., food, and clothing. The categories and the pictures within each category are sequenced as recommended for learning progression by established systems. Fallon says that the photos used in her books address the limited world of the handicapped child and serve a dual purpose of education and enjoyment.

The photographs—ranging from family members to a hotdog or a favorite toy—are very simple and uncluttered and labeled with one-word captions. They are mounted on heavy cardboard stock, and lettering is placed to help the eye focus more accurately and stimulate "a first awakening of word/picture association."

Activities

Fallon stresses that the success of activities depends on parent and teacher creativity and flexibility. A basic sequence is: presentation of picture to the child; use of associated language; encouragement of child's response; repetition of performance, leading to understanding and memorization; and various applications of skills learned.

It is also important that parents follow up with daily informal and ongoing sessions to reinforce previous learning, according to the teacher.

The activities are designed to help the children relate to the pictures as symbols so that they come to point to named pictures, understand what pictured objects are for, match pictures to real objects, categorize objects, and recognize words, and retain an attention span for increasing periods of time.

Materials, Resources, and Expenses

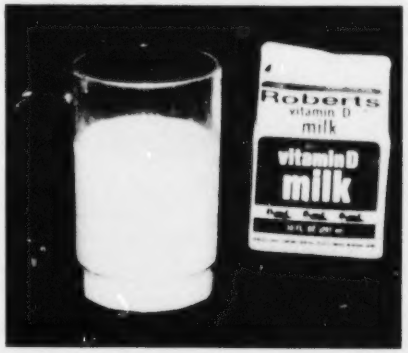
Parents, a graphics consultant from the local newspaper, and various school personnel who helped with photography and developing, editing, printing, laminating, and binding the books were Fallon's major resources. While there are advantages to color books, Fallon notes that the special education department of her school system has produced a black-and-white version for about $1.50.

Outcomes and Adaptability

Fallon has found that all the students involved in this program have become attached to their personal book and that developmental growth has been displayed by all children in some or all of the goal areas. These areas include: to begin at the front of the book and hold it right-side-up; to turn pages singly; find specific pictures; identify people and objects; categorize objects; and recognize the one-word labels.

The teacher reports that symbolization skills have developed for one population solely due to the use of photographs as an intermediary step from objects to drawing, and that another group learned sign language for the pictures shown, gained confidence about producing vocalizations and word approximations, and become more interested in learning as a whole. And, in general, use of the albums has improved the children's self-image and boosted parental involvement.

"The beauty of this project is its versatility," stresses Fallon. Either teachers or parents could vary subject matter of the album, arrange photos on the page differently, use different sized pictures, or add such additional concepts as verbs or animal sounds. The usefulness of the album grows as the child progresses from receptive language right on to reading readiness.



Community Involvement for the Handicapped

Sharilynn M. Russo

Turner Highlands Special Center
Antioch, California

Subject: Special Education

Grade: ages 5–21

"It has been suggested that simple line drawings would be more successful and less costly than photographs. However, my experience is that severely handicapped students are not sufficiently able to generalize for this to be true."

Purpose and Description of Project

Sharilynn Russo, a speech pathologist, uses photographs of foods from restaurant menus, grocery items, and other objects from the community environment of her severely mentally and/or physically handicapped students to help them learn to communicate their needs and behave appropriately in public places.

The students are trained at school to point to pictures in response to questions and then go out into the community with teachers and aides to practice what they've learned in real-life situations. They learn, for example, to take a "grocery list" of photos to the store, show the photos to the appropriate person or find the items themselves, take them to the check-out counter, pay, and take the items in a cart to the car.

Russo says that few of her students are able to communicate orally but that many can use limited signing. However, few people in the community understand signing and even many parents are unable or unwilling to use this form of communication. Therefore, she explains, "presenting pictures to a clerk and pointing to a picture of a desired item help bridge this communication gap." And, she adds, the success in communicating leads to improved behavior.

As a result, she found that the project helped students "feel more a part of the environment" and "parents feel better about including their children in activities because they respond more readily and are behaving more appropriately."

Activities

Russo photographed foods from restaurants and items from stores and other aspects of students' environment, laminated them, and selected an appropriate set of photos for each student. Classroom teachers and aides then assisted in training the students at school to learn to respond with the appropriate photo to questions they were asked. The students then went out into the community in small groups with adults to practice communicating with the pictures in actual restaurant and store situations.

In a fast-food restaurant, for example, the students learned to wait patiently in line, point promptly to photographs of the items they wanted, pay for the order and get their change, eat properly, and dispose of their trash.

Materials, Resources, and Expenses

The speech pathologist was assisted by classroom teachers and aides in both training the students to point to pictures in a classroom environment and monitoring students' activities in the community.

While Russo does not provide specifics as to the type of camera and film used to take the color prints used in her project, she estimates the cost of film and developing at between $75 and $100.

Outcomes and Adaptability

"The responsiveness of the students to this program has been wonderful," declares Russo. They've not only learned to point to photos to communicate with store clerks and others but some actually started using some speech in conjunction with the pictures, and others have increased the use of signing. She says that people in the community have also been increasingly cooperative, primarily due to the emphasis on correct behavior and strict limiting of outings to very small groups. Students have also come to participate more in family activities as their communication and behavior have improved.

The teacher advises that the program can be used with any severely handicapped population by using pictures appropriate to program goals and the level of the students' ability to participate.

Photography in the Language Development of Deaf Children

Dianne Davis

Children's Center of Montgomery, Inc.
Montgomery, Alabama

Subject: Special Education

Grade: Elementary (Deaf Education)

"The photographs were definitely the motivating factor. Enthusiasm for language and reading lessons was so improved, the children could hardly sit still long enough for their turn."

Purpose and Description of Project

Dianne Davis made use of photography to create a visual learning aid that would stimulate student interest and a desire to learn. Her project was designed to develop the language and reading skills of her deaf students by exposing them to a variety of new experiences, and to photography as a means of recording their experiences. Language and reading lessons were intended to become more exciting and relevant as photos of the students in action were used to introduce new vocabulary words and to serve as inspiration for creating simple descriptive sentences.

Activities

Davis' students focused on verb expansion and the use of these new words in sentences. She used an instant camera to take action pictures of the students in natural settings. Then the class discussed what was happening in each photo in relation to the word being introduced, and practiced using the word in a sentence. The action pictures were reviewed daily to reinforce learning. During the next step, students were given a series of pictures, each with a descriptive sentence, and gradually they learned how to ask and answer questions about the pictures and sentences.

The students participated in similar activities during reading lessons. They drew their own illustrations, labeled them with the action words being studied, and compiled them in a notebook to study. Finally, the students began reading the sentences they had created during their language classes. Students reviewed the illustrated sentences frequently, during lessons and independently. At the completion of the project, they succeeded in writing simple original sentences about the action pictures, and in writing and answering questions about their sentences.

The action photos were also used for reading and language games, including a Concentration-type game that required students to match each picture with a descriptive word or sentence.

During their social studies unit, Davis took 35mm black-and-white photos of each student for a personal data card. The students helped a local photographer develop these prints.

Materials, Resources, and Expenses

School staff and students posed for numerous action photos, and a Girl Scout leader helped provide them with new experiences to photograph. A teacher/photographer at a nearby school offered his darkroom and helped students develop and print their personal pictures. Davis used her own 35mm camera and one roll of black-and-white film for the data cards. A Kodak instant camera and 10 packs of 20-exposure color film were needed for the action photos. A photo album and extra pages brought the total cost to about $175.

Outcomes and Adaptability

Davis used the curriculum for the development of language and reading skills among deaf children found in *Lotto Language Principles and Practices* (Brown, Whitt, and Lotto, 1982). Photography complemented this particular approach, the goals of which were to make concepts as visible and obvious as possible and to teach concepts in context. Language and reading skills showed significant improvement, and some students even learned to alphabetize the illustrated verbs. Before completing the personal data cards, only one child knew her address and phone number; afterward, only one child was unable to give this personal

information. The project was a success for Davis: "In my opinion all of [my] goals have been achieved as were documented by the improved test scores obtained at the end of the school year." She found just as important the pleasure and enthusiasm her students expressed during the project activities.

Davis advises that a similar program with a longer implementation period could also cover simple story-writing, again using pictures as the basis for the writing. Not limited to use with deaf students, the project could be used to develop writing and vocabulary skills in any language class or other academic area.

Photo Books for Parent Home Training

Cheryl Kincaid, Kay Hishinuma, Meiko Wada, and Bob Slavin

Jefferson Elementary School
Honolulu, Hawaii

Subject: Special Education

Grade: Ungraded (Severely Multiply Handicapped, ages 3–12)

"We have found that as our children's skills have improved, so has their acceptance by tourists and other local people."

Purpose and Description of Project

Special education teachers Cheryl Kincaid, Kay Hishinuma, Meiko Wada, and Bob Slavin used individualized photo booklets to enhance the communication between family and school that is so important to ensuring "consistency in implementation of the Individualized Educational Programs (IEPs) of severly multiply handicapped children (SMH)."

The 25 students involved in this project function at a severly retarded level, having two or more of such conditions as p ofound mental retardation, orthopedic or other chronic health impairment, severe emotional disturbance, hearing impairment, and/or visual impairment. The teachers were concerned about the regression in these children's basic skills that occurred over holidays, vacations, and other absences. The areas of concern include self-help, communication, social, and cognition skills, and might include feeding one's self, making eye contact, or being able to balance on hands and knees.

The teachers photographed each child to demonstrate the child's current positioning, exercise, and communication objectives and also the direction and handling skills needed by parents to help the children attain these objectives. The photos show exactly how to set up the necessary learning environment, position the child, and carry out various procedures. Photos in the booklets are accompained by captions and explanations of what is shown.

As a result of the booklets, say the teachers, parents became more confident in helping their children, and skill regression during absences from school was significantly reduced. In addition, copies of the booklets are kept at school. The teachers have found that the photographs have made trainers more "aware of the effects of their attitudes during training" and that the booklets are valuable for use in training substitute teachers, foster grandparents, and other volunteers.

Activities

The first activity is to evaluate each child in conjunction with a physical therapist, occupational therapist, speech therapist, and parents. Goals and objectives are then set, written in measurable terms, and broken into steps. The children are pre-tested to see how near they are to the objectives, and strategies are discussed. Then the teachers photograph "critical components of activities/strategies to reinforce the importance of precise and proper methods."

The photos and captions about each child are then organized in a booklet that can easily be revised according to progress or regression, and the activities and strategies are taught to parents in real situations with their own children. The book is then sent home, parents continue to work with the children, and progress is charted. Additional photos and activities are added or deleted as the child's needs change.

Materials, Resources, and Expenses

Human resources include physical, occupational, and speech therapists, and, of course, the parents themselves. The teachers used commercially produced therapeutic equipment in the classroom and focused on how parents could adapt furniture and materials at home to the same purposes. Teachers used their own cameras. Other requirements were notebook, film, developing, copying, and plastic covers. Some of the film and developing costs were donated. Cost of school and home copies of each child's notebook was under $21.

Outcomes and Adaptability

The teachers assessed the project on the basis of pre- and post-tests surrounding two extended vacations—one prior to development of the home teaching books and one after. Data "showed that for the majority of the students, the degree of regression during the second vacation was minimal when compared to the regression noted in the first." As a result, the teachers have concluded that photo books are "a valuable tool for ensuring continuity between school and home environments" for these severely handicapped children.

The teachers feel that photo books would be valuable in any parent training program designed to improve follow-through at home.

Functional, Community-Based Reading with Photos

Jean Resor

West Delaware School
Manchester, Iowa

Subject: Special Education

Grade: Ages 6–21

"Being able to take pictures gives the students acceptable, age-appropriate, functional skills that they and their families can be proud of."

Purpose and Description of Project

Jean Resor used photographs of words as they actually appear in the community to help her 11 mentally handicapped students (below 55 IQ) improve their reading skills to function more independently in community and school environments.

Resor had found that although her students could read common words in the classroom they were often unable to read the same words in real-life settings. However, once she and the school's audiovisual technician researched the community and photographed the students' study words in a variety of actual situations, primarily on signs, she found that the students' percentage of transferable reading increased markedly.

Once students mastered words, they were allowed to photograph their own community examples of these words and take home the photos for their personal use. Resor says that "the immediate feedback of seeing their pictures makes this activity highly motivating and reinforcing," that it has increased student interaction with parents, and that it has provided the students with a leisure skill that will last a lifetime.

Activities

The word photos were used in numerous ways. These include: as supplements to daily individual readings; as attachments to the language master cards; on bulletin boards designed to help students match up words; on an electronic matching board that lights up when photo words are matched correctly; and in several games. The games included "concentration," in which pairs of photos are matched; "bingo," which uses photos of 10 consecutive words from the students' reading program; "photo caution," in which photos of "danger" words are used as a deck of cards for a game similar to Old Maid; and "where is it?" which is a guessing game in which students try to identify where word photos were taken.

Materials, Resources, and Expenses

Human resources included the AV technician, volunteers, and personnel at community training sites. The teacher and technician used 35mm cameras (the school's) and ASA 400 film for instructional photos, while the students used a Kodak instant camera and film for their projects. Resor notes that ASA 400 film cost $4.19 a roll, developing $3.99, and prints $.16 each.

Outcomes and Adaptability

Resor declares that "this has been one of the most exciting and rewarding projects that the students, families, volunteers, community members, and school staff have been involved in." She says that the use of photos "definitely increased the students' percentage of transferable reading" and that community members have commented positively on the improvement in the students' ability to function in actual situations. "The level of independence and ability to function appropriately within our community has developed in *each*," she expands. "They hold up their heads, read what they see to the best of their ability, and, if appropriate, perform the correct function. The social impact and the development of each student's self-image is fantastic."

Resor believes that such projects will be increasingly valuable as more school districts adopt programs to help their special education students get along in everyday situations. She adds that word photos can be used with successive groups of students and that "one of the strong points of the program is that it can be used by anyone—parents, teachers, aides, etc.—and presented in unlimited ways."

Art for All

Daniel Finocchiaro

John G. Leach School
New Castle, Delaware

Subject: Special Education

Grade: Nongraded Orthopedically Handicapped (ages 10 to 20)

"Success for the students was in creating art works that let them artistically express themselves with fewer limitations than with other media."

Purpose and Description of Project

Daniel Finocchiaro believes that "one of the unique challenges" of teaching his handicapped students "is encouraging them to communicate and express their own individual ideas." His students have a range of disabilities (sometimes multiple), ranging from muscular dystrophy to spina bifida to hydrocephalus, and are involved in a prevocational training program.

The teacher found that the photogram was an excellent medium of expression for his students because the photogram (or shadowgram) lends itself to an almost endless array of creative arrangements while not requiring the fine motor control of regular photography. The procedure is also simple enough for students to maintain full control over the final product even if they need assistance at some stage, and, as a result, says Finocchiaro, there was "a general increase in students' morale and their attitude toward education."

The students chose their own set of objects from school and home, including lace tablecloths, small toys, feathers, kitchen utensils, flowers, and nuts and bolts. They then experimented with arrangements as they placed their selected objects on a piece of Plexiglass. At this point, the students moved into the darkroom, put the Plexiglass sheet and arrangement over photographic paper, and exposed it to light. The pictures were then developed and framed. The results were often startlingly beautiful, impressionistic visions.

Activities

The teacher began with class discussions of the nature of a photogram vs. a photograph, how photographic paper works, and how photograms are made. Students also studied several examples of photograms and tried to guess what objects had been used to create the images.

Once the students had selected their objects and arranged them on a Plexiglass sheet, they went into the darkroom in groups of two or three and followed these steps: placed the photographic paper under the Plexiglass sheet; turned on the light source for the proper amount of time to expose the paper; placed paper in the developer tray and then transferred it to stop bath, fixer tray, and at last to rinse.

After studying each day's results, the students chose new objects or rearranged old ones and repeated the entire process. The students' work will be displayed in an annual photogram exhibit at the school as well as in district art exhibits in competition with both regular school students and handicapped students.

Materials, Resources, and Expenses

Various other school personnel assisted Finocchiaro and the students both in the classroom and in the darkroom. Equipment included an Omega B66 Enlarger, a Gray Lab Model 300 darkroom timer, two orange safelights, Kodak 8 × 10 Polycontrast Rapid II Resin Coated (F) medium weight photographic paper, and a Soligor Store N' Feed Paper Safe. Chemicals used were Kodak Dektol Developer, Kodak indicator stop bath, and Kodak fixer. Other items needed were developing trays, tongs, a sink with running water, a 10" × 12" sheet of clear acrylic for each student, and materials to mount the photograms. Costs included $10 for chemicals and $50 for 250 sheets of photographic paper.

Outcomes and Adaptability

The teacher's main goal was to open up an avenue of artistic expression that his handicapped students could handle and that produced results they could compare with pride to similar works of any other students. Photograms, he found, are ideal for these purposes. Even the more severely disabled students, he says, could be "proud that the photogram was 100 percent their own creation." Further, each creation could be judged on its merits, rather than against some artificial norm or standard.

Finocchiaro stresses that this process can be used by any teacher with any students—either under an unrestricted format to focus on students' artistic creativity, or according to guidelines to enhance a specific subject area. He notes that the procedures of the photogram are so easy to learn that a substitute who filled in for him observed for only one day and then ran the program for the next two days with results "as good as or better than I had produced." He adds that a bathroom or closet can be converted to a temporary darkroom and that a desk lamp and a clock with a second hand can be substituted for an enlarger and a photographic timer.

Developing a Community Skills Slide Show Library for Trainable Mentally Retarded Students

James R. Engle

Everest School
Vallejo, California

Subject: Special Education/Community Skills

Grade: Severely Handicapped 16-to-21-Year-Olds

"The support and assistance received from individuals, businesses, and government officials has been integral to the program's success."

Purpose and Description of Project

James Engle and the 10 developmentally disabled young adults participating in this project have produced the core of slides designed to help handicapped youngsters and adults. They will, more easily, move about and participate in their community. These young people not only improved their own community skills in the process of producing the slides, but created a continuing resource for themselves and others.

The teacher found that the project succeeded on two levels—(1) the use of photography as an educational tool and leisure skill for the students and (2) the resulting slides functioning as both a creative outlet and a cognitive/testing tool. The students had a role in taking pictures and gained increased competency and independence in their community excursions.

Activities

The students began by studying maps of the city until they could find home, school, the grocery store, parks, and directions. They then used flashcards, games, slides, and other aids to drill on specific community features, such as food items, bus fare, words from traffic signs, and directional indicators.

During this period, Engle and the students developed letters explaining the program to parents and inviting them to participate in and contribute to the project. Engle notes that within a week after appeals to home and community, "we had an Instamatic for each student and twice as many donated rolls of slide and print film." The students, who Engle says, "loved to get their hands on the cameras," practiced such photographic basics as judging distance, framing the subject, and checking light values.

Students and teacher went on community excursions during which they shopped, took public transportation, visited a farm, mailed letters, studied traffic signals, and went to the library. During these experiences, half the students joined the teacher in taking photos while the other half practiced the relevant community skills. Once their slides and prints were developed, the students sorted the "keepers," selected themes and categories for displays, and built bulletin boards. Their several hundred slides and a report on the project are being made available for use and duplication by others.

Materials, Resources, and Expenses

The community as a whole is the central resource for this project. Parents contributed everything from cameras to lunches and bus fares, as well as working with students at home to reinforce photography and community skills. Others who responded were the city bus system, library staff, government officials, grocery stores, drug stores, Boy Scouts, city recreation services, and police department.

Camera equipment and materials included 10 Instamatics; the teacher's Fujica ST801 35mm SLR camera; macro, zoom, and wide-angle lenses; a pink filter for florescent indoor shots and a polarizing filter for outdoor haze; color slide and print film; a carousel slide projector; and slide jackets. Primary expenses for film development (several hundred slides and more than 100 prints), some film, and filters—totalled about $245—obtained at cost.

Outcomes and Adaptability

Engle reports that the students not only became enthusiastic photographers but showed marked increases in all the skill and independence areas tested. These included planning and mapping, appropriate and safe travelling behaviors, cooperative group functioning, and dealing with a wide range of community situations.

Additional areas that Engle feels could be productively covered through his methods are vocational training, sports, restaurant skills, and personal grooming. He also urges that such slide libraries be used not just with developmentally disabled students but for educating community groups and preparing other school sites for "mainstreaming" experiences.

Erasing Handicapism: A Slide Show for Developing Positive Attitudes Toward Disabled Pupils

Dr. Arthur Shapiro

The William Paterson College of New Jersey
Wayne, New Jersey

Subject: Teacher Education/Special Education

Grade: Higher Education

"The major strength is the impact that the slides have on us. It seems as if they are all things we've seen, but never really understood all the implications." (Viewer)

Purpose and Description of Project

Arthur Shapiro created a slide presentation focusing on handicapism—discrimination toward the handicapped. Feeling that negative image factors, most of which operate subliminally, are often the basis of discrimination toward the handicapped, he sought to make teachers, and subsequently their students, aware of the sources of some of their negative feelings toward the disabled. In addition to making educators aware of the stereotypes of the disabled, Shapiro designed his slide show to present practical methods for offsetting these damaging biases with appropriate curricular materials and activities. If mainstreaming of handicapped children is to be successful in schools and in the community, nonhandicapped children and teachers must learn to interact with the handicapped with understanding and acceptance. Shapiro focused his efforts on fostering attitudes of acceptance that are critical to the success of educating handicapped pupils in the least restrictive educational setting.

Activites

Shapiro gathered his slide and script subjects from historical as well as contemporary sources. To illustrate his belief that negative attitudes toward those who are "different" are learned early in life—and mostly from the mass media—Shapiro presented stereotypes of the disabled from media sources. Examples showed disabled persons as humorous (Mr. Maggo), pitiable (poster children), and evil (Captain Hook). Slides also illustrated follow-up activities teachers could initiate to overcome negative student attitudes toward handicapped pupils—teaching about individual differences and handicapism, having the students perform disability simulations, having disabled persons speak to the students, and encouraging students to read books and watch television programs or movies that present the disabled in realistic and positive ways.

After Shapiro had developed and sequenced the slides and written his script, he presented his slide show to five graduate and undergraduate classes in special education. The 66 students who viewed the presentation were asked to complete a questionnaire indicating strong and weak points of the presentation, whether it made them aware of their feelings toward the handicapped and/or changed these feelings in any way, whether it would help teachers deal with mainstreamed handicapped children, and what their overall reaction to the presentation was.

ILLUSTRATIONS BY JAN CHURCHER

Materials, Resources, and Expenses

Shapiro prepared the slide show himself using a Honeywell SP1000 Pentax camera and Kodak Ektachrome Tungsten film ASA 160. He used a copy stand to make slides from original picture sources. Shapiro researched articles on handicapism as he established the content and order of his presentation.

Outcomes and Adaptabiity

Shapiro's questionnaire indicated positive reactions from the viewers. Over 89% said the presentation made them aware of negative attitudes, and almost 73% said it changed their personal feelings toward the disabled. All the viewers thought the presentation would benefit teachers of mainstreamed pupils. Also, all had positive overall reactions to Shapiro's presentation, although some recommended the use of taped narration.

Shapiro recommends the development and use of a similar slide show in several curricular areas. Social studies classes could focus on attitudes toward minorities, influence of the media, laws, and social policy, while English classes could study images of the disabled in literature. Journalism students might research bias in newspaper feature stories and editorials, and science teachers could add such concepts as deafness or blindness to their studies of the human body or sound and light. Finally, family life educators could use such a presentation to foster appreciation of individual differences and appropriate interpersonal relationships.

The Photographic Image: Visual Communication and Aesthetic Preferences

Mary Ruth Smith
Lynn Marie Blinn

University of Houston
Houston, Texas

Subject: Visual Literacy

Grade: Higher Education

"In summary, this study provided students an interdisciplinary opportunity to both explore and analyze family life situations through photographic interpretations."

Purpose and Description of Project

Mary Smith and Lynn Blinn involved their undergraduate students in three content areas (family studies, design processes, and research concepts) in a research project on the photographic image as a form of visual communication. They selected as the focus of this study the family photographic image because it was a familiar one for most people and because most students had, at some time, been involved in documenting family relationships and values through photography.

Family studies students generated 53 definitions of the family, which Smith and Blinn sorted into four categories: (1) nature of the family bond (blood, marriage, adoption); (2) character of the relationship (loving, supporting); (3) family structure (nuclear, extended); and (4) nature of the household (living under the same roof). Three definitions were selected at random from each of the four categories, and students were assigned to select 5 of the final 12 definitions to represent through photographs and written justifications. Two student objectives for their project were: (a) to identify the relationship between various conceptualizations of the family and corresponding photographic images, and (b) to generate a set of photographs corresponding to selected definitions of the family.

Activities

Each group of students participated in introductory activities. Design students studied the communicative tactics (repetition, contrast, grouping) utilized in photographic images to convey meanings that affect everyday decisions in, for example, advertising and product design. Research concepts students discussed ways to identify and analyze the qualitative and quantitative research methodologies to be used in the project. The family studies students wrote their personal definitions of the family from which the final 12 definitions were selected.

All students were assigned to shoot photos of the families of their choice, and submit one or more photos representing each definition with a brief explanation of why the photo(s) represented a particular definition.

Materials, Resources, and Expenses

Students used their own cameras, both 35mm and instant. The University's Audiovisual Department provided the Kodak Ektographic copy stand used in photographing the students' justifications and images, and the slide projector used during the seminar. The cost of making the slides for the 80 prints and the justifications was approximately $160. The panel of three expert judges rated the students' projects, and two went on to participate in the seminar.

Outcomes and Adaptability

The two instructors concluded that the project produced the expected outcomes. Students' creative and critical thinking skills were developed as they combined visual images with written justifications. Their observational skills also improved as they analyzed the visual and verbal aspects of not only the photographic image but also one aspect of society. Although each student worked independently, the final results indicated that the nature of the visual research and the subjective content had strengthened the students' interdisciplinary attitudes.

Smith and Blinn find their study has the potential for three additional applications: (1) using the selected photos to test the relationship between images and family definitions with subjects of varying ages, educational backgrounds, genders, and socioeconomic and ethnic backgrounds; (2) including students from disciplines other than human development (3) giving students more specific direction as to traditional/nontraditional family situations. They suggest that such a project can be used as described or varied and adapted to examine problems within art, design, family studies, and research concepts classes.

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